1

International maritime trade and port traffic

In 2020, international maritime trade and global supply chains were hit by the impact of the COVID-19 pandemic. Overall however, maritime transport managed to navigate through the crisis, and for some parts of the supply chain the impact was not as dramatic as initially feared. Carriers were able to mitigate the early shock and manage lower levels of demand. Port and landside operations, however, struggled to adjust, and the world's seafarers faced a precarious situation as they became caught up in an unprecedented global crew-change crisis.

In 2020, global economic output fell by 3.5 per cent and merchandise trade by 5.4 per cent, while international maritime shipments fell by 3.8 per cent, to 10.65 billion tons. However, UNCTAD expects world maritime trade to recover by 4.3 per cent in 2021, and growth is projected to continue over the 2022–2026 period, albeit at rates that will be moderated by the easing in world economic output. Although the short-term outlook is positive, the medium- and longer-term prospects remain uncertain: the upturn will be directed by the future path of the pandemic and the associated lockdowns and restrictions. A lasting recovery also hinges on keeping trade flowing, by creating supportive macroeconomic and fiscal conditions while minimizing trade protectionism.

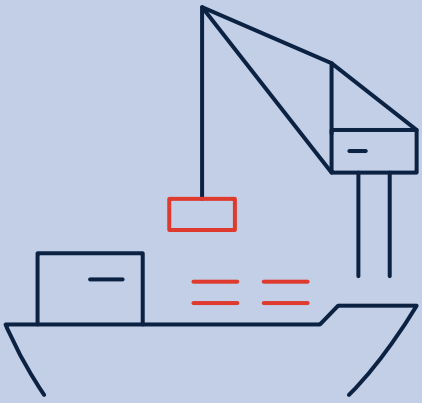
Throughout 2021, much of the global economic revival will be driven by government spending in major economies, so the patterns and geography of the recovery will be shaped by the ways in which their governments wind up these support measures – in terms of scale, focus, and timing. Progress could, however, still be derailed by further outbreaks of the pandemic, by slow vaccine deployment and in many economies by the limited scope for policy support. It has become clear that broad-based recovery will require an end to the health crisis and an equitable distribution of vaccines across all regions, developed and developing.

Starting in late 2020, a swift rebound in containerized trade stumbled against supply-side constraints – which increased costs, dented reliability of service, and undermined the operation of value chains. As global demand patterns normalize, these problems are likely to dissipate, but the longer- term outlook will continue to be shaped by wide-ranging and longer-term structural factors, including patterns of globalization, changes in consumption habits, digitalization and the growth of ecommerce, as well as by the global energy transition and the imperative of environmental sustainability.

The impact of COVID-19 has also highlighted the need for better risk management, and greater preparedness, and resilience. The disruption was amplified by other events that created transport bottlenecks – in some countries by flooding, for example, and especially by the blocking of the Suez Canal, which exposed risks and vulnerabilities in supply chains. Building future resilience will entail reforming business models and global supply chains, and reorganizing maritime transport networks.

This chapter considers developments in maritime transport and trade during 2020 until mid-2021. Section A reviews the situation of international maritime trade and container port traffic. Section B sets out the outlook for global recovery and its sustainability. Section C puts forward some key policy considerations and action areas.

Maritime trade and port cargo traffic



INTERNATIONAL SEABORNE TRADE IN 2020

Growth slipped by

-3.8%

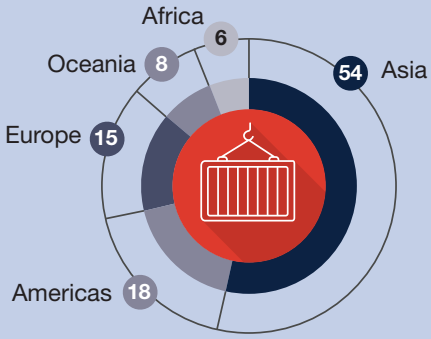
following on a weak pre-pandemic growth of 0.5% in 2019

Total volumes reached

10.7 billion tons

Developing countries continue to account for the lion's share of world maritime trade by volume

World maritime trade, percentage share per region



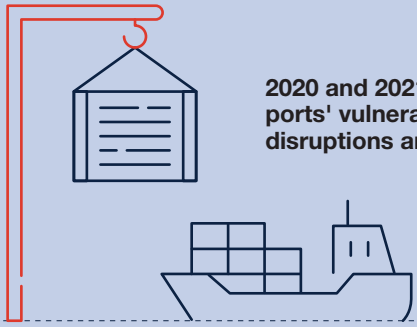
WORLD CONTAINER PORT TRAFFIC IN 2020

Down by

-1.2%

Volumes estimated at

815.6 million TEUs



2020 and 2021 exposed ports' vulnerability to disruptions and risks

World container port traffic by region, 2019-2020 (percentage annual change)

Asia **-0.4**

Africa **0.0**

Latin America and the Caribbean **-1.8**

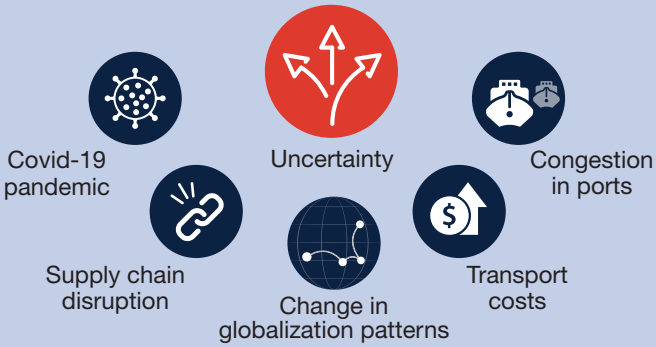
Europe **-4.2**

North America **-1.9**

Oceania **-0.8**

OUTLOOK

Short-term outlook for maritime trade is positive, however, risks are manifold and uncertainty remains



UNCTAD expects world maritime trade to recover

by

+4.3% in 2021

Growth in maritime trade volumes expected to moderate and expand at an annual rate of

+2.4%

between 2022 and 2026

A. VOLUMES OF INTERNATIONAL MARITIME TRADE AND PORT TRAFFIC

The demand for maritime transport services and infrastructure can be assessed through key indicators on trade and port cargo handling. Over the review period, these followed a rollercoaster ride: in early 2020 demand tanked as a result of the pandemic but then bounced back in the second half.

1. International maritime trade fell in 2020 as the pandemic sequentially disrupted supply, demand, and logistics

In 2020, the pandemic disrupted the world economy, cutting manufacturing activity and consumption – with impacts on supply, demand and logistics. International maritime trade growth had already been weak in 2019 at 0.5 per cent, but in 2020 it declined by 3.8 per cent. Total volume dropped by 422 million to 10.65 billion tons (table 1.1 and table 1.2).

Nevertheless, the impact was not as dramatic as initially feared and the maritime transport sector managed to navigate through the crisis (figure 1.1). In 2020, maritime trade increased as a proportion of global GDP, with an increase in the maritime trade-to-GDP ratio as the pandemic induced a shift in consumer demand from services to traded goods. However, this is likely to be short lived as demand patterns normalize and spending continues to rebalance back towards services. In 2021, the narrative is still being driven by the pandemic and related risks, but attention is now moving toward the vaccine rollout, the recovery in growth, and the supply and demand pressures that are currently disrupting trade logistics. At the same time, the industry must consider the longer-term sustainability and resilience of shipping, ports and their hinterland connections.

Around two-thirds of global trade in goods takes place in developing countries (figure 1.2). As indicated in table 1.2, in 2020, developing countries, including the transition economies of Asia, accounted for 60 per cent of global goods loaded (exports) and 70 per cent of goods discharged (imports). Much of this growth has been in East Asia, especially China, and there has also been a surge in volumes on the Transpacific containerized trade route linking East Asia to North America. A smaller proportion of trade was in developed countries, which generated 40 per cent of global maritime exports (goods loaded) and 31 per cent of imports (goods discharged).

Asia's predominance was further strengthened in 2020 as it maintained its 41 per cent contribution to total goods loaded and increased its contribution to total goods discharged (table 1.2 and figure 1.3). Developing America and Africa maintained their existing, smaller shares.

Table 1.1 International maritime trade, 1970–2020
(millions of tons loaded)

Year	Tanker trader[a]	Main bulk[b]	Other dry cargo[c]	Total (all cargoes)
1970	1 440	448	717	2 605
1980	1 871	608	1 225	3 704
1990	1 755	988	1 265	4 008
2000	2 163	1 186	2 635	5 984
2005	2 422	1 579	3 108	7 109
2006	2 698	1 676	3 328	7 702
2007	2 747	1 811	3 478	8 036
2008	2 742	1 911	3 578	8 231
2009	2 641	1 998	3 218	7 857
2010	2 752	2 232	3 423	8 408
2011	2 785	2 364	3 626	8 775
2012	2 840	2 564	3 791	9 195
2013	2 828	2 734	3 951	9 513
2014	2 825	2 964	4 054	9 842
2015	2 932	2 930	4 161	10 023
2016	3 058	3 009	4 228	10 295
2017	3 146	3 151	4 419	10 716
2018	3 201	3 215	4 603	11 019
2019	3 163	3 218	4 690	11 071
2020	2 918	3 181	4 549	10 648

Sources: Compiled by the UNCTAD secretariat based on data supplied by reporting countries and as published on the relevant government and port industry websites, and by specialist sources. Dry cargo data for 2006 onwards has been revised and updated to reflect improved reporting, including more recent figures and a better breakdown by cargo type. Since 2006, the breakdown of dry cargo into "Main bulk" and "Other dry cargo" is based on various issues of the *Shipping Review and Outlook* and *Seaborne Trade Monitor*, produced by Clarksons Research. Total maritime trade figures for 2020 are estimated based on preliminary data or on the last year for which data were available.

[a] Tanker trade includes crude oil, refined petroleum products, gas, and chemicals.

[b] Main bulk includes iron ore, grain, coal, bauxite/alumina, and phosphate. Starting in 2006, "Main bulk" includes iron ore, grain, and coal only. Data relating to bauxite/alumina and phosphate are included under "Other dry cargo".

[c] Includes minor bulk commodities, containerized trade, and residual general cargo.

Table 1.2 International maritime trade 2019–2020, by type of cargo, country group and region

	Year	Goods loaded				Goods discharged			
		Total	Crude oil	Other tanker trade[a]	Dry cargo	Total	Crude oil	Other tanker trade[a]	Dry cargo
Millions of tons									
World	2019	11 070.5	1 860.3	1 302.6	7 907.6	11 055.1	2 022.8	1 320.5	7 711.8
	2020	10 648.3	1 716.0	1 202.3	7 730.0	10 631.1	1 863.6	1 222.0	7 545.5
Developed economies	2019	4 503.2	453.6	477.1	3 572.6	3 778.3	902.0	463.3	2 412.9
	2020	4 317.4	425.9	430.3	3 461.2	3 245.2	732.5	370.2	2 142.5
Developing economies	2019	6 567.3	1 406.7	825.5	4 335.1	7 276.8	1 120.7	857.2	5 298.9
	2020	6 330.9	1 290.1	772.0	4 268.8	7 385.9	1 131.2	851.7	5 403.0
Africa	2019	814.1	302.8	91.6	419.6	533.7	35.3	113.4	385.0
	2020	735.5	236.1	83.4	415.9	510.1	30.6	107.9	371.5
Latin America and the Caribbean	2019	1 406.6	221.9	81.3	1 103.3	621.4	45.0	143.7	432.6
	2020	1 369.2	200.5	75.6	1 093.1	590.1	39.6	130.0	420.5
Asia	2019	4 331.4	880.1	644.6	2 806.6	6 108.0	1 039.6	595.6	4 472.7
	2020	4 212.2	851.8	605.8	2 754.5	6 272.4	1 060.2	609.6	4 602.6
Oceania	2019	14.5	1.7	7.8	5.0	14.9	0.8	5.4	8.6
	2020	14.6	1.8	7.8	5.1	15.4	0.7	5.5	9.1

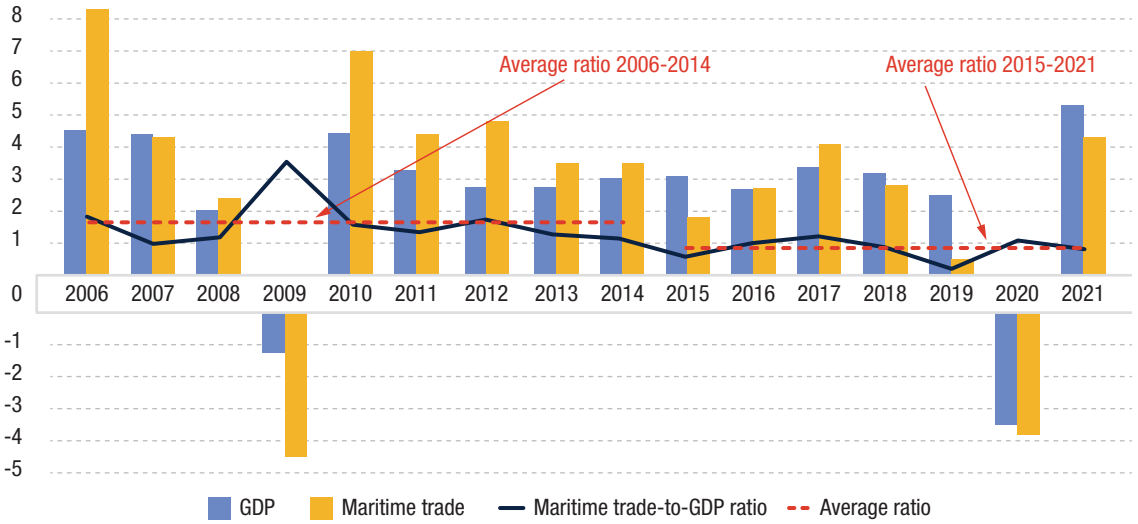
	Year	Goods loaded				Goods discharged			
		Total	Crude oil	Other tanker trade[a]	Dry cargo	Total	Crude oil	Other tanker trade[a]	Dry cargo
Percentage share									
World	2019	100.0	16.8	11.8	71.4	100.0	18.3	11.9	69.8
	2020	100.0	16.1	11.3	72.6	100.0	17.5	11.5	71.0
Developed economies	2019	40.7	24.4	36.6	45.2	34.2	44.6	35.1	31.3
	2020	40.5	24.8	35.8	44.8	30.5	39.3	30.3	28.4
Developing economies	2019	59.3	75.6	63.4	54.8	65.8	55.4	64.9	68.7
	2020	59.5	75.2	64.2	55.2	69.5	60.7	69.7	71.6
Africa	2019	12.4	21.5	11.1	9.7	7.3	3.2	13.2	7.3
	2020	11.6	18.3	10.8	9.7	6.9	2.7	12.7	6.9
Latin America and the Caribbean	2019	21.4	15.8	9.8	25.5	8.5	4.0	16.8	8.2
	2020	21.6	15.5	9.8	25.6	8.0	3.5	15.3	7.8
Asia	2019	66.0	62.6	78.1	64.7	83.9	92.8	69.5	84.4
	2020	66.5	66.0	78.5	64.5	84.9	93.7	71.6	85.2
Oceania	2019	0.2	0.1	1.0	0.1	0.2	0.1	0.5	0.2
	2020	0.2	0.1	0.9	0.1	0.2	0.1	0.5	0.2

Source: Compiled by the UNCTAD secretariat based on data supplied by reporting countries and as published on the relevant government and port industry websites, and by specialist sources. Dry cargo data for 2006 onwards has been revised and updated to reflect improved reporting, including more recent figures and a better breakdown by cargo type. Total maritime trade figures for 2020 are estimated based on preliminary data or on the last year for which data were available.

Note: Since March 2021, the category "transition economies" is no longer used by UNCTAD. Economies formerly classified as "transition economies" and located in Europe, are reassigned to the "developed regions" grouping, and the economies formerly classified as "transition economies" and found in Asia, are reassigned to the "developing regions" grouping. For more extended time series and data before 2020 see UNCTADstat Data Center at https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=32363. Annual world totals of goods loaded and discharged are not necessarily the same, given among other factors, bilateral asymmetries in international merchandise trade statistics and the fact that volumes loaded in one calendar year may reach their port of destination in the next calendar year.

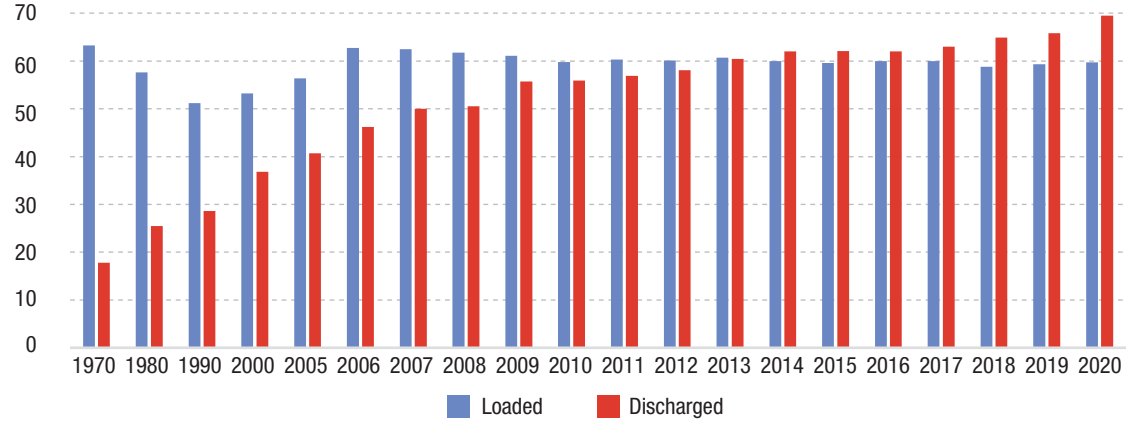
[a] Include crude oil, refined petroleum products, gas, and chemicals.

Figure 1.1 International maritime trade, world gross domestic product (GDP) and maritime trade-to-GDP ratio, 2006 to 2021
(percentage annual change and ratio)



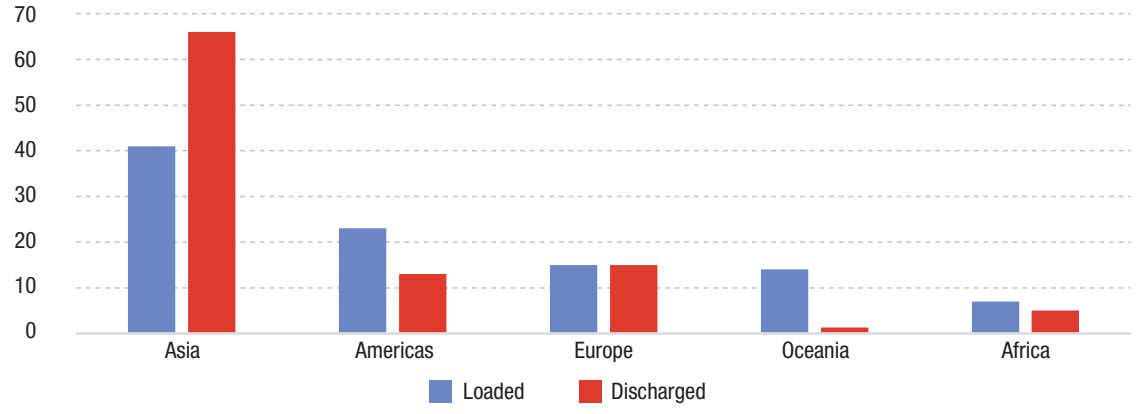
Source: UNCTAD calculations, based on the *Review of Maritime Transport,* various issues, data from UNCTADstat and table 1.1 of the UNCTAD *Trade and Development Report 2021. From Recovery to Resilience: The Development Dimension.*

Figure 1.2 Participation of developing countries in international maritime trade, selected years
(percentage share in total tonnage)



Source: UNCTAD secretariat based on the *Review of Maritime Transport*, various issues, and table 1.2 of this report.

Figure 1.3 International maritime trade, by region, 2020
(percentage share in total tonnage)



Source: Compiled by the UNCTAD secretariat based on data supplied by reporting countries and as published on the relevant government and port industry websites and by specialist sources.

2. Disruption of global economy and trade followed by signs of a multi-paced recovery

In 2020, global GDP declined by 3.5 per cent (table 1.3) – the largest downturn for 70 years. The greatest impact was in the services sector – in particular in tourism, travel and hospitality. For maritime trade, however, the plunge in flows was mitigated by the boost in demand from government stimulus packages. Estimated in March 2021 at around $16 trillion, and concentrated mainly in the United States, Europe and Japan, these packages helped soften the landing. Demand has further revived with the lifting of some COVID-19-related restrictions.

By the third quarter of 2020, there were signs of recovery, driven by positive trends in East Asia and the United States and the rollout of COVID-19 vaccines in many developed economies. While the manufacturing sector was down, consumer demand rose, notably in the United States with end-year retail sales 3.4 per cent higher than 2019 (Sand, 2021a). Unlike the downturn in the first half of 2020, however, which was globally synchronized, the nascent recovery is proceeding along diverging tracks, as many other economies, especially in developing regions continue to fall behind.

In 2020 the drop in GDP in developing economies, at 1.8 per cent (table 1.3), was less than the global average of 2.9 per cent for the 2009–2021 period. This was largely due to the performance of China which was the only country to have seen some economic growth in 2020 (2.3 per cent). China's efforts to contain the pandemic, along with a stimulus package, provided support to industry and exports.

In 2020, output in developed economies contracted by 4.7 per cent. The drop was lower in the United States at 3.5 per cent, as fiscal measures helped minimize the economic downturn, and steeper in the EU at 6.2 per cent, reflecting renewed pandemic outbreaks. In the United Kingdom, the drop was steeper still at 9.9 per cent, as a result not just of the pandemic restrictions but also of Brexit which disrupted supply chains as traders adjusted to new rules and procedures. Elsewhere, Japan's economy fell by 4.7 per cent while India's dipped by 7.0 per cent. There was also a severe impact on GDP in Latin America and the Caribbean, down by 7.1 per cent, in Africa by 3.4 per cent, in Western Asia by 2.9 per cent, and the Russian Federation by 3.0 per cent.

Table 1.3 World economic growth, 2019–2021
(annual percentage change)

Region or country	2019	2020	2021[a]
World	**2.5**	**-3.5**	**5.3**
Developed countries	**1.7**	**-4.7**	**4.7**
of which:			
United States	2.2	-3.5	5.7
European Union (27)	1.6	-6.2	4.0
United Kingdom	1.4	-9.9	6.7
Japan	0.3	-4.7	2.4
Australia	1.8	-2.5	3.2
Russian Federation	1.3	-3.0	3.8
Developing countries	**3.7**	**-1.8**	**6.2**
of which:			
Africa	2.9	-3.4	3.2
East Asia	4.3	0.3	6.7
of which:			
China	6.1	2.3	8.3
South Asia	3.1	-5.6	5.8
of which:			
India	4.6	-7.0	7.2
South-East Asia	4.4	-3.9	3.5
Western Asia	1.3	-2.9	3.5
Latin American and the Caribbean	**-0.1**	**-7.1**	**5.5**
of which:			
Brazil	1.4	-4.1	4.9

Source: UNCTAD secretariat, based table 1.1 of UNCTAD *Trade and Development Report 2021. From Recovery to Resilience: The Development Dimension*.

Note: Calculations for country aggregates are based on world GDP at constant 2015 dollars.

[a] Forecast.

For 2021, current projections for global GDP are pointing to growth of 5.3 per cent. Progress is again expected to be uneven, with Asia and the United States forging ahead. The speed and geography of the recovery will depend to large extent on the vaccine rollout and on the structure, scale, and duration of government support, as for example, in:

- *India* – The announced support measures focus on road infrastructure and are expected to boost dry bulk shipping by increasing demand for raw materials.
- *Japan* – The $3-trillion stimulus package, including the funds announced at the end of 2020 and focusing on green and digital innovation, could boost container volume in intra-Asian trade.
- *United States* – Additional fiscal stimulus measures, including large infrastructure plans will lift demand for some commodities.
- *European Union* – Spending from the Next Generation recovery fund is due to begin in 2021.
- *Least developed countries* – Stimulus packages average only 2.1 per cent of their GDP, i.e., one-ninth of the global average (UNDESA, 2021).

Table 1.4 Growth in the volume of world merchandise trade, 2019–2021
(annual percentage change)

	Volume of exports (percentage change)			Volume of imports (percentage change)		
	2019	2020	2021[a]	2019	2020	2021[a]
World	**-0.3**	**-5.3**	**14.3**	**-0.3**	**-5.5**	**13.3**
Developed countries	**-0.2**	**-6.7**	**12.5**	**-0.2**	**-5.6**	**12.2**
of which:						
Euro area	-0.1	-8.7	13.4	0.0	-8.2	11.3
United States	-0.5	-11.0	11.0	-0.4	-4.0	16.0
United Kingdom	-3.1	-14.4	-2.5	3.9	-13.5	7.7
Japan	-1.6	-7.8	17.3	0.8	-6.2	3.7
Other developed countries	**2.0**	**-5.1**	**12.3**	**0.0**	**-4.5**	**15.3**
Developing countries	**-0.4**	**-2.3**	**17.5**	**-0.6**	**-5.2**	**15.9**
of which:						
China	0.4	1.3	34.3	0.0	1.7	17.1
Latin America	0.6	-4.2	9.9	-1.5	-11.2	21.0
Africa and the Middle East	-4.0	-6.8	-2.7	-0.3	-2.8	3.1
Asia (not including China)	-1.3	-3.6	19.6	-2.4	-11.6	20.2
Eastern Europe and Commonwealth of Independent States	**2.0**	**-2.2**	**0.6**	**5.0**	**-5.4**	**8.8**

Source: UNCTAD Secretariat calculations, based on CPB World Trade Monitor, July 2021. Data source and methodology are aligned with UNCTAD, *Trade and Development Report 2021*.

Note: Country coverage and classification in the aggregated country groupings is not comprehensive and relies on Ebregt (2020).

[a] For 2021, figures reflect percentage change between the average for the period January to May 2021 and January to May 2020.

In 2020 taken together, world merchandise imports and exports fell by 5.4 per cent (table 1.4), This decline was far lower than more pessimistic forecasts at the height of the pandemic (UNCTAD, 2020a). In April 2020, the World Trade Organization (WTO) had expected world merchandise trade to drop by between 13 and 32 per cent in 2020 (WTO, 2020). There was indeed a slump in the second quarter of 2020 but trade volumes bounced back in the third quarter, responding to the easing of restrictions and lockdowns and announcements of new vaccines. Along with vaccine rollout in major developed regions, the rapid return in volumes reflected the resilience of East Asian trade and the boost in consumer demand from fiscal spending in the United States. Trade in services however remained subdued across all economies. Tourism and cruise shipping were hit hard, though there was a growth in cross-border services that were increasingly enabled by digital technologies.

Exports and imports fell in almost all regions – though to different extents. As shown in table 1.4, between 2019 and 2020 developed country regions saw a drop in exports of 6.7 per cent and in imports of 5.6 per cent. The United Kingdom recorded a double-digit drop in exports, as did the United States though here the implementation of the Phase One trade agreement boosted some exports to China (Sand, 2020a). Trade also declined in the euro area and Japan albeit at relatively lower rates while trade involving other developed regions fared relatively better with exports falling by only 5.1 per cent and imports by 4.5 per cent.

Developing regions also recorded a drop in merchandise trade volumes although at more moderate rates: exports fell by 2.3 per cent while imports dropped by 5.2 per cent. The one exception was China where, despite the disruption, exports rose by 1.3 per cent and imports by 1.7 per cent. For Asia, excluding China, however, exports declined by 3.6 per cent while imports dropped by 11.6 per cent. In Latin America imports dropped by 11.2 per cent and exports by 4.2 per cent. In Africa and the Middle East exports fell by 6.8 per cent and imports by 2.8 per cent. In Eastern Europe and Commonwealth of Independent States, the decline in imports was less at 2.2 per cent, though imports fell by 5.4 per cent.

2021 saw a revival in world merchandise trade. During the first five months of the year exports were 14.3 per cent higher than in the corresponding period in the previous year, while imports rose by 13.3 per cent (table 1.4). But the recovery was uneven with exports from Africa and the Middle East as well as from the United Kingdom continuing their decline. In the United States imports jumped

by 16.0 per cent, reflecting inventory building and the lasting benefits of fiscal support measures. During the same period, imports increased into the euro area by 11.3 per cent, the United Kingdom by 7.7 per cent and Japan by 3.7 per cent. Imports into developing countries increased by 15.9 per cent and into Eastern Europe and Commonwealth of Independent States by 8.8 per cent.

Much of global import demand in the first half of 2021 was met from Asia, in particular from China whose exports expanded by 34.3 per cent. There was also stronger import growth in Latin America, of 21.0 per cent. Recovery in Africa and the Middle East was more moderate for both exports and imports. For the full year 2021, the WTO expects world merchandise trade volume to grow by 8.0 per cent though the recovery will be uneven (WTO, 2021).

This bounce-back in merchandise trade in almost all major economies has been faster than in previous recessions – in 2009 and 2015 – though it has been from a low base and has been more robust in goods than services (UNCTAD, 2021). The rebound was evident across a wide range of sectors including pharmaceuticals, communications and office equipment, as well as minerals and agri-food. Much of this has been due to the release of pent-up demand for durable goods such as cars, as well as strong demand for products that support working from home. In contrast, recovery in the energy sector remains hesitant.

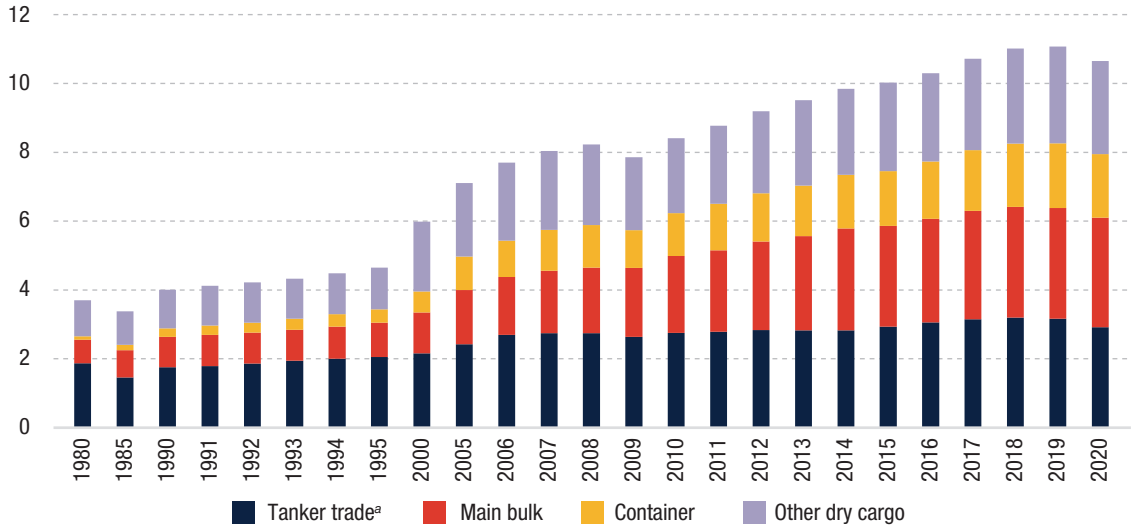
3. Maritime trade fell in 2020 but fared better than initially feared

The sudden dip and subsequent recovery in merchandise trade was reflected in the patterns of maritime trade. In 2020, the outcome was better than initially feared. Volumes dipped by around 12 per cent in May 2020 compared with May 2019, but only by around 2.0 per cent in the fourth quarter compared with the same quarter in 2019 (Clarksons Research, 2021b). For 2020, following a contraction of 3.8 cent, UNCTAD estimates shipping volumes to have lost 422 million tons.

The performance varied by market segment, with some sectors performing better than others (table 1.1, table 1.2, figure 1.4). Worst hit was tanker shipping, but there was less impact on containerized trade, gas shipments, and on dry bulk commodities such as iron ore and grains.

The second half of 2020 saw a nascent recovery – though asymmetric across market segments. There was a return in volumes for containerized and dry bulk commodities, but tanker shipping awaited a full recovery in global demand. At the same time, the sudden boost in demand stumbled into shortages – of shipping capacity, and of containers, and equipment. As result, freight rates surged, with proliferating surcharges. This may have bolstered shipping profitability but it put supply chains under strain, while adding to port congestion and increasing delays and dwell times, and leading to a general decline in service reliability.

Figure 1.4 International maritime trade by cargo type, selected years
(millions of tons loaded)

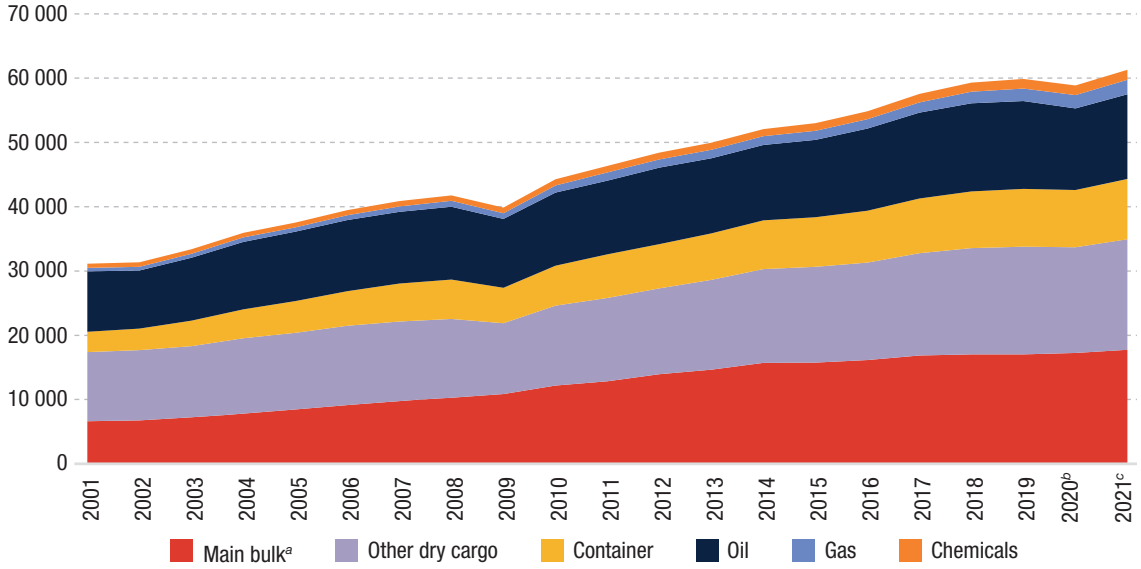


Source: UNCTAD *Review of Maritime Transport*, various issues. For 2006–2020, the breakdown by cargo type is based on Clarksons Research, *Shipping Review and Outlook*, Spring 2021 and *Seaborne Trade Monitor*, various issues.

Note: Given methodological differences, containerized trade data in tons sourced from Clarksons Research are not comparable with data in TEUs featured in tables 1.8 and 1.9 and figures 1.8 and 1.9 of this report and which are sourced from MDS Transmodal.

[a] Tanker trade includes crude oil, refined petroleum products, gas, and chemicals.

Figure 1.5 International maritime trade in cargo ton-miles, 2001–2021
(billions of ton-miles)



Source: UNCTAD secretariat based on data from Clarksons Research. *Shipping Review and Outlook*, Spring 2021.

[a] *Includes* iron ore, grain, coal, bauxite/alumina, and phosphate.

[b] *Estimated.*

[c] *Forecast.*

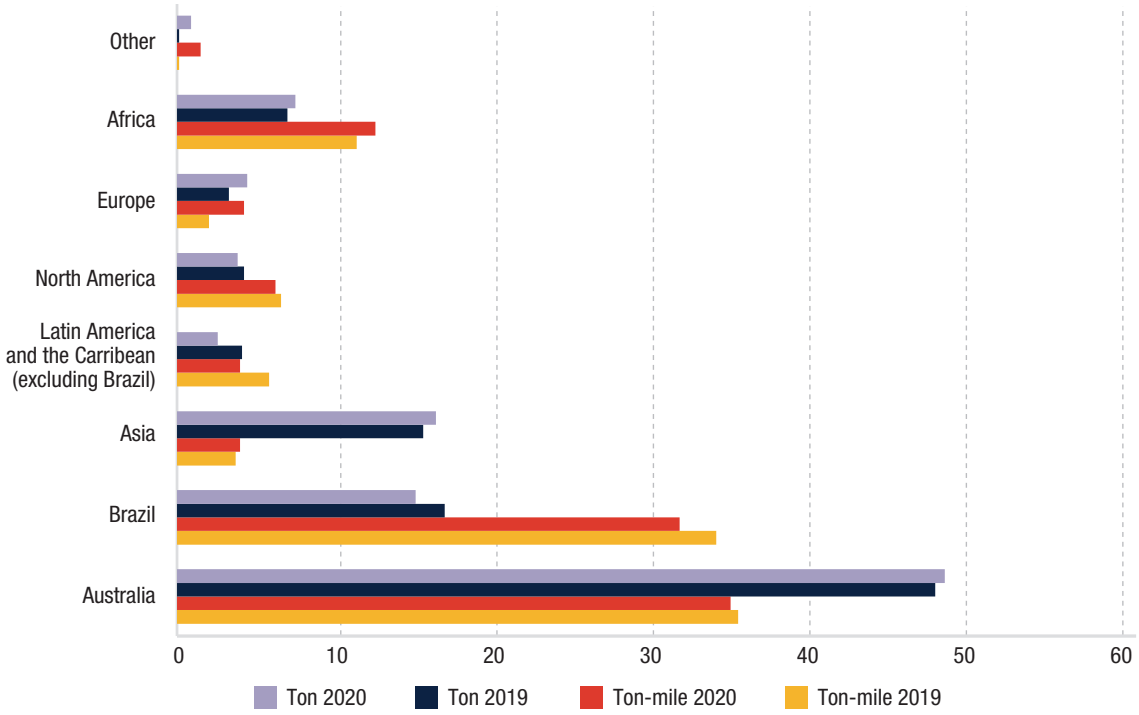
The pandemic has proved to be an asynchronous, multi-wave event, as COVID-19 outbreaks lead to sequences of lockdowns and various restrictions. In 2020 these disruptions were exacerbated by other events such as the closure in China of the port of Yantian, which is a critical international container terminal, and the week-long blockage of the Suez Canal, with further problems in 2021 as a result of extreme weather events. For some of the major industries in Europe, these bottlenecks are causing shortages of inputs and delays in delivery, and generally holding up the recovery. Automotive plants, for example, had to close temporarily due to missing critical components and parts (Ewing and Clark, 2021). This confluence of factors exposed the vulnerabilities of supply chains and of their underlying maritime transport systems. They have also amplified the call for nearshoring and reduced the attractiveness of long-haul trade and extended supply chains.

When adjusted for distance travelled, however, the decline in maritime trade in 2020 was lower – falling by only 1.7 per cent, to an estimated 58,865 billion cargo ton-miles (figure 1.5). But there were different outcomes for different types of cargo: oil decreased by 7.0 per cent and containerized trade by 1.5 per cent, while there was an increase of 1.3 per cent in dry bulk trades (iron ore, coal, and grain) and of 6.7 per cent in gas shipments, including liquified petroleum gas (LPG) and liquified natural gas (LNG) (Clarksons Research, 2021a).

International maritime trade flows were sustained in 2020 by the rapid economic rebound in China with a 9 per cent increase in maritime import demand, in particular imports of iron ore and grain. Maritime trade flows were also supported by China's exports of containerized goods to the United States. Meanwhile, lower demand for oil, and cuts by major OPEC+ oil producers and oil production, have continued to keep a lid on the recovery in tanker shipping.

Most ton-miles and tons generated by bulkers of over 100,000 dwt were contributed by shipments from Australia, followed by Brazil. In 2020, Australia generated 58 per cent of world iron ore exports and Brazil 23 per cent (figure 1.6). Much of this is destined for China. In 2020, China accounted for 76 per cent of world iron ore imports and 20 per cent of coal imports. Tonnage on the Australia-China route, however, declined in 2020, probably as result of the pandemic and the tensions between the two countries. China is seeking to diversify its sources of supply and is looking more to Africa. Trade in ton-miles generated by bulkers on the Africa-China route increased in 2020, probably reflecting increased iron ore shipments from South Africa. Guinea could also be a supplier since it is reported to hold large reserves of untapped high-quality iron ore. Guinea is expected to start shipping iron ore beginning in 2026, which will boost demand for dry bulk shipping (Hellenic Shipping News, 2020). The country is already the world's top supplier of bauxite, much of which is shipped to China.

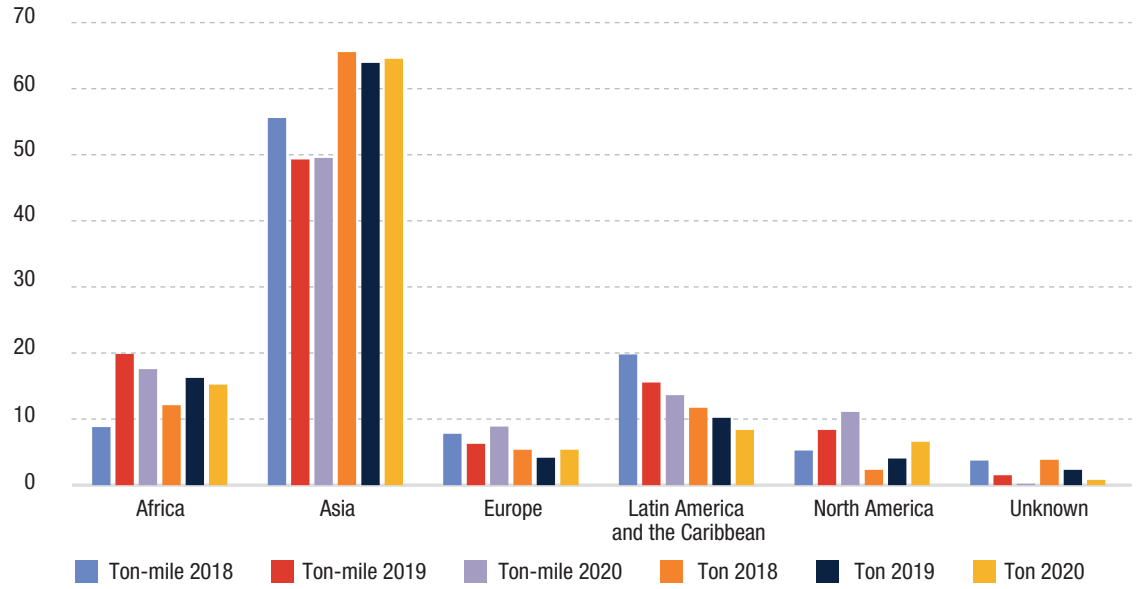
Figure 1.6 World capesize dry bulk trade by exporting region in tons and ton-miles, 2019–2020 (percentage share)



Source: UNCTAD based on VesselsValue data 2021.
Note: Based on dry bulk vessels of more than 100,000 dwt.

Crude oil exports continue to be dominated by Western Asia (figure 1.7). Much of the world's import demand is from Asia, mainly China and India, followed by Japan and the Republic of Korea. Ton-mile increase generated by North American exports in 2020 reflects the strong import demand in China and growth in exports from the United States captured under Phase One of the trade deal with China. At the underlying level, the shale boom is also a key driver of North American oil exports, with the United States becoming a net seaborne energy exporter.

Figure 1.7 World ultra-large tanker trade by exporting region in ton and ton-miles , 2018–2020 (percentage share)



Source: UNCTAD based on VesselsValue data, 2021.
Note: Tanker vessels of more than 320,000 dwt.

4. Diverging impacts and recoveries for key shipping markets

Oil trade still under pressure and gas trade down

The shipping market hardest hit by the pandemic has been the oil trade. Between 2019 and 2020 UNCTAD estimates that tanker trade, including crude oil, refined petroleum products, and gas, slipped by 7.7 per cent, with volumes down from 3.2 billion to 2.9 billion tons (table 1.5).

The steepest drop was for seaborne crude oil at 7.8 per cent, as total volumes fell to 1.7 billion tons. Crude oil imports declined in most key importing markets including the United States, Europe, India, Japan, and the Republic of Korea. The only increase was in China, by 8 per cent.

The demand for crude oil in 2020 reflects a reduction in demand for fuel – Jet A for aircraft, gasoline for automobiles, and diesel for trucks – with volumes declining by over 10 per cent (Clarksons Research, 2021b). While road travel is expected to increase, long-distance aviation prospects remain uncertain, awaiting a worldwide rollout of vaccines.

Fuel imports to West Coast Latin America from the United States have fallen, partly because of limited refinery capacity in the United States, opening up an opportunity for suppliers from Asia. Increased diesel and gasoline shipments from Asia to West Coast Latin America will benefit ton-mile growth (Connelly, 2021).

The tanker trade has suffered from weak oil demand, high inventories, and cuts in oil supply by OPEC+ members. That said, 2021 should see an improvement as demand gradually recovers and supply increases. Starting in August 2021, as oil prices hit their highest levels in more than two years, OPEC+ members agreed to phase out 5.8 million barrels per day of production cuts (OPEC, 2021). Meanwhile, a lifting of the United States sanctions would increase exports from the Islamic Republic of Iran, which could displace production from other locations but nevertheless increase the demand for tankers. With an increase in OPEC production and the expansion of Asian refineries, there is likely to be more demand for very large crude carriers.

India's recent decision to diversify crude oil imports and reduce its dependency on Western Asia is also good news for operators of crude-oil tankers and will boost demand in terms of ton-miles (Drewry Maritime Research, 2021a). Ongoing repositioning of refinery capacity closer to demand is likely to alter trade patterns, which could boost crude ton-miles but is more likely to reduce product tanker ton-miles.

In the longer term, tanker demand will be affected by the current global energy transition, which implies a change in the energy mix. Elsewhere, as more refineries in some advanced economies close, changes to oil trade patterns are likely to intensify (Danish Shipping Finance, 2021). A reduction in the United States exports due to the low oil price environment may reduce long-haul trades. Suezmaxes may regain some business due to the potential expansion of Western Asian crude oil production destined for India and South East Asia (Danish Shipping Finance, 2020). Oil product trade flows could become more regionalised, lowering seaborne volumes and travel distances (Danish Shipping Finance, 2020). Ongoing repositioning of refinery capacity closer to demand is likely to alter trade patterns, which could boost crude ton-miles but would more likely reduce product tanker ton-miles. The pandemic has also weighed, if to a lesser extent, on the global demand for gas. In 2020, global gas trade increased only marginally, by 0.4 per cent, while volumes of LNG exports are estimated to have expanded by 1.1 per cent and of LPG to have declined by 1.0 per cent. Gas projects have been delayed by weak energy prices, including work on LNG export terminals in the United States and LNG feedstock projects in Australia (Clarksons Research, 2020). That said, exports from the United States rebounded in 2020, thanks to a boost in consumer demand supported by a cold winter in Asia. The United States also increased its LPG trade, by 15 per cent.

Natural gas offers a lower-carbon source of energy, so with more demands for sustainability and a transition to lower-carbon energy, the global gas trade is set to increase. Much of the growth will be driven by Asia, with an important role for China's new propane dehydrogenation plants. India's trade will also expand as a result of subsidized domestic LPG prices.

Table 1.5 Tanker[a] trade, 2019–2020 (million tons and percentage annual change)

	2019	2020	Percentage change 2019–2020
Crude oil	1 860	1 716	-7.8%
Other tanker trade	1 303	1 202	-7.7%
of which:			
Gas	478	480	0.4%
Total tanker trade	**3 163**	**2 918**	**-7.7%**

Sources: UNCTAD secretariat, derived from UNCTAD data in table 1.2 of this report.

Note: Gas trade figures are derived from Clarksons Research, *Seaborne Trade Monitor*, Volume 8, No.6, June 2021.

[a] Includes: refined petroleum products, gas, and chemicals.

Natural gas is set to contribute a larger share to the global energy mix in the coming years, with much of the growth driven by shale-gas production in the United States, as well as by production in Western Asia and in other regions including the Mediterranean and East Africa (Clarksons Research, 2020).

Dry bulk commodity trade defied pressure in 2020 with China keeping the trade flowing[1]

Total dry bulk trade fell by an estimated 1.5 per cent in 2020, as volumes slipped to 5.2 billion tons (table 1.6). China's rapid economic recovery has boosted its import demand so it could take up extra cargo generated by suppressed demand in other regions. Iron ore trade remained unperturbed as shipments increased by 3.2 per cent to 1.5 billion tons. Grain trade also held firm, increasing volumes by 7.1 per cent. Supporting factors included a record Brazilian harvest, the returning United States-China trade, and better prospects in pig farming in China following the recovery from the 2018 African swine fever outbreak. In 2021, seaborne dry bulk trade is projected to expand by 3.7 per cent, with iron ore and grain trade growing steadily, a rebound in minor bulk volumes and more coal trade.

Coal trade plunged 9.3 per cent in 2020, partly as a result of the pandemic, with reduced electricity demand across regions overlaid on the ongoing structural shift towards cleaner energy sources. Minor bulk trade also came under pressure, though only falling by 2.2. per cent. There was also less trade in forest products, as well as lower nickel ore exports due to Indonesia's export ban. The bauxite trade was much stronger, expanding by 8.2 per cent, with China accounting for 77 per cent, and Guinea providing 46 per cent of the supply (Clarksons Research, 2021b).

The current major players in the dry bulk trade are featured in table 1.7. These patterns are likely to change as a result of tensions between China and Australia which are affecting coal and iron ore trade. To compensate for the ban on Australian cargo China has cut import duties on coal by land from Mongolia. This would reduce trade by ship, though the impact could be mitigated by increases on the Indonesia-China route (Drewry Maritime Research, 2021b). Meanwhile, a shift in Australia's exports away from China to more distant locations such as Saudi Arabia will increase shipping demand and ton-miles (Drewry Maritime Research, 2021c).

Recovering from the pandemic on the 'build back better' principle will require greener and smarter solutions and a shift towards cleaner and lower-carbon energy sources. In the longer term this will undermine demand for dry bulk carriers (Danish Shipping Finance, 2020). Equally, as the Chinese economy becomes less steel intensive, its demand for iron ore will flatten. The loss of seaborne trade could, however, be partially offset by a growth in trade in the non-ferrous metals that are essential for producing renewable technologies – such as nickel ore, copper, lithium, cobalt, and bauxite – though these commodities are mostly traded in smaller volumes (Danish Shipping Finance, 2021).

Trade tensions between China and the United States have affected trade in grain. In 2017, the United States accounted for 34 per cent of China's seaborne grain imports. In 2019, this share fell to 18 per cent, before recovering to 27 per cent in 2020, on the back of the Phase One trade deal commitments. China's efforts to diversify its suppliers have benefited Brazil whose share of the Chinese market increased from 44 per cent in 2017 to about 60 per cent in 2018 and 2019, before falling back to 48 per cent in 2020 (Zhang, 2021). Other countries have also gained market share, including Ukraine, France, the Russian Federation, and Argentina. But China's grain import demand also faces 'downside risks, including a renewed outbreak of African swine fever and softer crush margins that may dampen soybean imports.

Table 1.6 Dry bulk trade 2019–2020 (million tons and percentage change)

	2019	2020	Percentage change 2019–2020
Main bulka	**3 218.0**	**3 181.0**	**-1.1%**
of which:			
Iron ore	1 456.0	1 503.0	3.2%
Coal	1 284.0	1 165.0	-9.3%
Grain	478.0	512.0	7.1%
Minor bulk	**2 030.0**	**1 986.0**	**-2.2%**
of which:			
Steel products	373.0	354.0	-5.1%
Forest products	383.0	365.0	-4.7%
Total dry bulk	**5 248.0**	**5 167.0**	**-1.5%**

Source: UNCTAD secretariat calculations, based on Clarksons Research, 2019d, *Dry Bulk Trade Outlook,* Volume 26, No. 6, June.

[a] *Includes* iron ore, coal (steam and coking) and grains (wheat, coarse grain and soybean).

[1] Detailed figures on dry bulk commodities are derived from Clarksons Research (2021), *Seaborne Trade Monitor*. Volume 8. No. 6. June.

Government fiscal spending boosts consumption and helps containerized trade weather the storm

In 2020, full box trade fell by just 1.1 per cent to 149 million twenty-foot equivalent units (TEU) (figure 1.8). This was a better outcome than initially feared and quite an accomplishment compared to the 8.4 per cent plunge in 2009 following the financial crisis. After the shock in early 2020, volumes swiftly returned, as consumer demand was boosted by stimulus packages and measures to support incomes.

The bounce-back in 2021 reflected easing economic impacts and the unlocking of pent-up demand, as well as restocking and building inventory. But there was also a shift in consumption patterns away from services and towards goods, notably for health products and pharmaceuticals, as well as home office equipment, along with changes in shopping patterns and the expansion of ecommerce. The surge in trade was welcome but on such a scale that shipping services and port operations were often unable to keep up, resulting in logistical bottlenecks. By the end of 2020 and until the first half of 2021, the whole industry, including shipping, ports, shippers, and inland carriers struggled with shortages in containers, equipment and shipping capacity. This has added to port congestion and reduced service levels and reliability, while also increasing freight rates and surcharges (see chapter 3).

Reflecting the rebound in volumes on the eastbound leg of the East Asia-United States trade, the combined share of the East-West trade routes, including the Asia-Europe, the Transpacific, and the Europe-North America (Transatlantic) increased marginally in 2020. Together, intra-regional trade, essentially reflecting Intra-Asian flows and South-South trade, accounted for over 39.5 per cent of the total. Non-mainlane East-West trade routes (e.g., Eastern Asia-South Asia-Western Asia) and North-South routes represented 12.9 per cent and 8.0 per cent of the market, respectively.

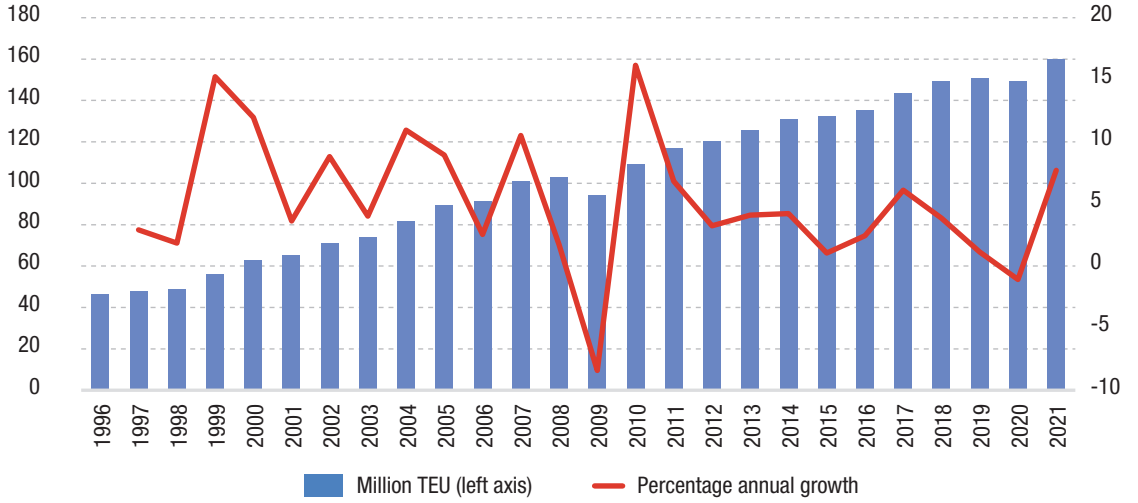
Performance varied across regions and trade lanes (table 1.8). In 2020, total volumes on the mainlane routes decreased by only 0.3 per cent, as the declines of 2.6 per cent on the Asia-Europe trade lane and of 3.2 per cent on the Transatlantic lane were partially offset by growth of 2.8 per cent on the Transpacific route (table 1.9). Non-mainlane trade fell by 1.6 per cent, reflecting the disruption in India which reduced the East-West trade by 3.3 per cent. North-South trade fell by 1.8 per cent, while South-South trade contracted by 2.4 per cent. By early summer of 2020 the rapid recovery

Table 1.7 Major dry bulk and steel: producers, users, exporters, and importers, 2020 (percentage share of world markets)

Steel producers		Steel users	
China	56	China	56
India	5	India	6
Japan	4	United States	5
United States	4	Japan	5
Russian Federation	4	Republic of Korea	4
Republic of Korea	4	Russian Federation	4
Turkey	2	Germany	2
Germany	2	Turkey	2
Brazil	2	Viet Nam	1
Islamic Republic of Iran	2	Other	15
Other	15		
Iron ore exporters		**Iron ore importers**	
Australia	58	China	76
Brazil	23	Japan	7
South Africa	5	Europe	6
Canada	4	Republic of Korea	5
India	3	Other	6
Sweden	1		
Other	6		
Coal exporters		**Coal importers**	
Indonesia	35	China	20
Australia	31	India	19
Russian Federation	13	Japan	14
United States	5	Republic of Korea	10
South Africa	6	European Union	6
Colombia	5	Taiwan Province of China	6
Canada	2	Malaysia	3
Other	3	Other	22
Grain exporters		**Grain importers**	
United States	26	East and South Asia	49
Brazil	23	Africa	14
Argentina	11	South and Central America	10
Ukraine	10	Western Asia	9
European Union	9	European Union	9
Russian Federation	7	North America	1
Canada	6	Other	8
Australia	3		
Other	5		

Sources: UNCTAD secretariat, based on data from the World Steel Association (2021), Clarksons Research *Seaborne Trade Monitor*, Volume 8, No. 6, June 2021; *Dry Bulk Trade Outlook*, Volume 27, No.6, June 2021.

Figure 1.8 Global containerized trade, 1996–2021
(million TEU and percentage annual change)



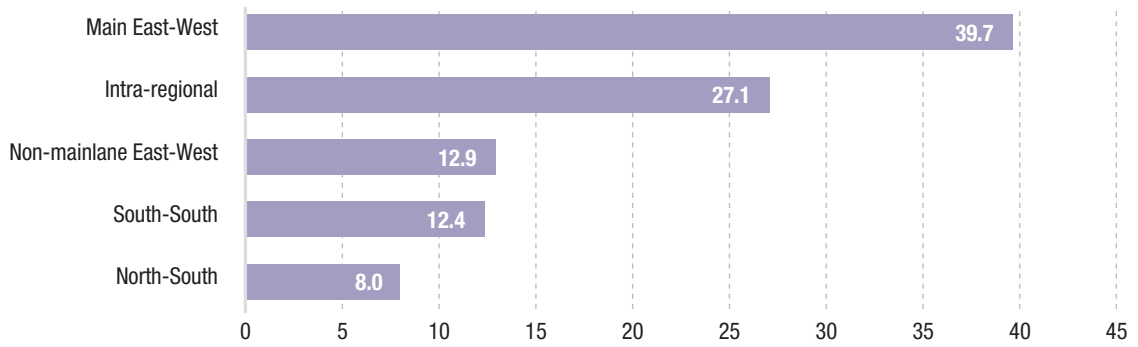
Source: UNCTAD secretariat calculations, based on MDS Transmodal, World Cargo Database, June 2021.
Note: Projected figure for 2021 based on table 1.11 of this report.

in Asia had helped the intra-Asian trade rebound, and for the full year the decline was only 0.4 per cent for intra-regional trade.

2020 saw an increase of 2.8 per cent on the Transpacific route, boosted by a surge in flows from East Asia to the United States (table 1.9). Between the fourth quarter of 2019 and the first quarter of 2020, containerized trade from Asia to North America had dropped by 13 per cent, but in the third quarter of 2020 it jumped by 36 per cent. While container shipping imports to the United States had been rising, exports from that country had fallen considerably. At the port of Los Angeles, for example, loaded imports were four times greater than loaded exports – so the return legs often had empty containers, which created shortages for exporters.

Faced with congestion and long waiting times at ports, stakeholders have looked for alternatives. In some cases, they have accepted more costly air freight and in others have diverted ships away from the busiest ports. In the short term, these problems are unlikely to diminish. The latest United States $1.9-trillion stimulus package should boost consumer spending which, combined with low inventory levels, is expected to increase imports (Sand, 2021b). In the second quarter of 2021, containerized shipments from East Asia to North America were 35 per cent higher than in equivalent quarter in 2020 (MDS Transmodal, 2021).

Figure 1.9 Global containerized trade by route, 2020
(market shares, percentage of world total TEU)



Source: UNCTAD secretariat calculations, based on data from MDS Transmodal, World Cargo Database, June 2021.
Note: Non-mainlane East West: Trade involving Western Asia and the Indian Sub-continent, Europe, North America, and East Asia.
North-South: Trade involving Oceania, Sub-Saharan Africa, Latin America, Europe, and North America.
South-South: Trade involving Oceania, Western Asia, East Asia, Sub-Saharan Africa and Latin America.
Intra-regional: Trade within Europe, Africa, Asia, North America, Latin America and Oceania.

Table 1.8 Containerized trade on East-West trade routes, 2016–2020
(million TEU, percentage annual change)

	2016	2017	2018	2019	2020
Main East-West routes	**54 480 143**	**57 520 472**	**60 323 619**	**59 317 350**	**59 168 679**
Other routes	**80 879 086**	**86 095 802**	**88 844 890**	**91 538 274**	**90 046 704**
of which					
Non-mainlane East-West	18 005 252	19 056 910	19 049 879	19 960 498	19 299 089
North-South	11 120 656	11 745 000	12 086 773	2 099 662	11 882 623
South-South	15 533 787	16 920 644	18 175 418	18 892 469	18 430 527
Intra-regional	36 219 391	38 373 249	39 532 821	40 585 645	40 434 465
World total	**135 359 229**	**143 616 274**	**149 168 510**	**150 855 623**	**149 215 384**
	Percentage change				
Main East-West routes	**4.03**	**5.6**	**4.9**	**-1.7**	**-0.3**
Other routes (Non-mainlane)	**1.40**	**6.5**	**3.2**	**3.0**	**-1.6**
of which					
Non-mainlane East-West	2.57	5.8	0.0	4.8	-3.3
North-South	-0.37	5.6	2.9	0.1	-1.8
South-South	-1.68	8.9	7.4	3.9	-2.4
Intra-regional	2.75	5.9	3.0	2.7	-0.4

Source: UNCTAD secretariat calculations, based on data from MDS Transmodal, World Cargo Database, June 2021.

Note: Non-mainlane East West: Trade involving Western Asia and the Indian Sub-continent, Europe, North America, and East Asia.
North-South: Trade involving Oceania, Sub-Saharan Africa, Latin America, Europe, and North America.
South-South: Trade involving Oceania, Western Asia, East Asia, Sub-Saharan Africa and Latin America.
Intra-regional: Trade within Europe, Africa, Asia, North America, Latin America and Oceania.

Table 1.9 Containerized trade on major East-West trade routes, 2014–2021
(million TEU and percentage annual change)

	Eastbound	Westbound		Eastbound	Westbound		Eastbound	Westbound	
	East Asia–North America	North America–East Asia	Total Trans-Pacific	Northern Europe and Mediterranean to East Asia	East Asia to Northern Europe and Mediterranean	Total Asia-Europe	North America to Northern Europe and Mediterranean	Northern Europe and Mediterranean to North America	Transatlantic
2014	16.1	7.0	**23.2**	6.3	15.5	**21.8**	2.8	3.9	**6.7**
2015	17.4	6.9	**24.2**	6.4	15.0	**21.3**	2.7	4.1	**6.8**
2016	18.1	7.3	**25.4**	6.8	15.3	**22.1**	2.7	4.2	**6.9**
2017	19.3	7.3	**26.6**	7.1	16.4	**23.4**	2.9	4.6	**7.5**
2018	20.7	7.4	**28.0**	7.0	17.3	**24.3**	3.1	4.9	**8.0**
2019	19.9	6.8	**26.7**	7.2	17.5	**24.8**	2.9	4.9	**7.8**
2020	20.6	6.9	**27.5**	7.2	16.9	**24.1**	2.8	4.8	**7.6**
2021	24.1	7.1	**31.2**	7.8	18.5	**26.3**	2.8	5.2	**8.0**
	Percentage annual change								
2014–2015	7.5	-2.2	**4.6**	0.9	-3.2	**-2.0**	-3.1	5.1	**1.7**
2015–2016	4.3	6.6	**5.0**	6.3	2.4	**3.6**	0.2	3.2	**2.0**
2016–2017	6.6	-0.4	**4.6**	4.2	6.8	**6.0**	7.3	8.0	**7.7**
2017–2018	7.1	1.0	**5.4**	-0.9	5.7	**3.7**	5.3	7.6	**6.7**
2018–2019	-3.6	-7.4	**-4.6**	2.9	1.4	**1.8**	-4.7	-0.2	**-1.9**
2019–2020	3.2	1.6	**2.8**	-0.1	-3.7	**-2.6**	-4.6	-2.4	**-3.2**
2020–2021	17.1	2.7	**13.5**	8.0	9.5	**9.0**	1.4	9.0	**6.2**

Source: UNCTAD, based on MDS Transmodal, World Cargo Database, June 2021.

On other routes, the Asia-Europe trade declined by 2.6 per cent, reflecting reduced demand in Europe – despite frontloading and inventory building in the United Kingdom ahead of Brexit in 2020. And transatlantic trade fell by 3.2 per cent, depressed by reduced import demand from Europe, although solid import demand from North America moderated to 2.4 per cent the fall on the backhaul journey.

The crunch in container shipping in 2021 revealed many logistical problems, inefficiencies and vulnerabilities that are threatening the sustainability of the recovery and the competitiveness of supply chains. In May 2020, global schedule reliability had been 75 per cent, but in May 2021 it was only 39 per cent and in that month the average delay for late vessels was six days – down from the February peak of seven days, but still higher than that for most of 2020 (Metroshipping, 2021). At the same time, however, freight rates and surcharges, and fees, including demurrage and detention fees, had soared, though the latter rates were inconsistent across ports and carriers (Waters, 2021a).

These problems have been exacerbated by shipping network disruptions. In May 2021, the month-long closure of the port of Yantian in China increased cargo bottlenecks leading to a backlog affecting the region's manufacturing sector and increasing the number of blank sailings causing headaches for shippers (Port Technology International, 2021a; Waters, 2021b). Although less disruptive, the March 2021 grounding of the 20,150-TEU containership Ever Given in the Suez Canal blocked the canal, increasing delays for ships heading for Europe and added to a logistical disruption and port congestion. Some voyages had to be re-routed around the Cape of Good Hope, adding up to 7,000 miles to the journey – and pushing up freight and charter rates (Clarksons Research, 2021c).

Carriers argue that they are deploying all available capacity and that the current strain is being triggered by large and rapid swings in demand, and the surges in trade flows. This is leading to delays in returning containers and reducing effective capacity, making it difficult to cut delays, rates, and fees, while forcing carriers to adjust their networks and avoid some ports. They had already been advising customers on the Transpacific route, for example, that schedule disruptions would lead to blank sailings (Mongelluzzo, 2021a). As for terminal operators, they blame delays at ports on carriers, noting increases in double-sailings – two or more vessels sailing within the same week on the same service string or ordered set of ports. Large peaks and troughs in volumes leading to operational instability have disrupted operations and increased congestion (Waters, 2021c).

From their perspective, shippers have been looking for alternatives and solutions. Some have resorted to higher-priced air freight, while on the Far East-Europe route they have also been attracted by rail transport. According to Chinese customs data, rail volumes and capacity are still relatively small, but the two-way trade value nearly trebled in the first five months of 2021 (Global Times, 2021). Meanwhile, on the Transpacific and intra-Asian routes some commodities, such as grain and forestry goods, have seen a temporary de-containerization with goods despatched on dry bulk ships, adding to the demand for multipurpose ships and dry bulk carriers (Sand, 2021c).

To secure space on vessels, some shippers are seeking longer-term, multi-year, end-to-end contracts with carriers. For their part some carriers seek to convert 'ocean customers' to long-term 'end-to-end logistics customers'. Under these arrangements, shippers have access to logistics services such as warehousing, customs clearance, visibility, and the ability to speed up or slow down shipments (Knowler, 2021). Examples include Maersk's aim to become a full-service, end-to-end integrator, and the focus of CMA CGM and its CEVA Logistics division on creating integrated services (Tirschwell, 2021). In response to increasing congestion and shrinking ocean capacity Maersk has launched the first block train intermodal service between Europe and China (Port Technology International, 2021b).

The Global Shippers' Forum argues that the real crunch point for shippers is the plummeting service performance and the unpredictability of container delivery, and has renewed its call to remove the consortia block exemption regulation (Baker, 2021a). It points to the increasing number of blank sailings – ships skipping a port or ports, or cancelling the entire string – which reduce the number of containers that shippers can export. This disproportionately affects lower-paying shippers since carriers favour cargo from higher-paying customers (Waters, 2021c). In this respect, the United States Congress is drafting legislation to strengthen the Federal Maritime Commission's oversight of carriers' shipping practices (Gallagher, 2021).

The Global Shippers Alliance maintains that since no carrier on its own will be able to guarantee good connectivity and port pairs, the current supply chain crisis is unlikely to be solved by further regulation of container shipping. Instead it calls on carriers to take more risk, building contingency into their prices and employing new technology to make supply chain forecasts more accurate and more

transparent. The best solution, they say, would be to adopt enforceable contracts, which would also act as hedges against uncertainty and enhance collaboration among shippers, carriers and forwarders (Baker, 2021b).

Overall, since early 2020, when the pandemic first hit, the narrative for container shipping has thus shifted dramatically. Carriers have been able to manage ship capacity so as to mitigate initial disruptions but port and landside businesses required more time to adjust their yard and gate operations which often led to inefficiencies in terminal operations, such as the management of container stacking (Notteboom, Pallis and Rodrigue, 2021).

Shippers are caught in this storm and need to better manage their supply chains and adapt to lower capacity (Drewry Maritime Research, 2021d). They should adopt proactive supply chain strategies that anticipate delays and promote visibility. While some carriers and ports (e.g., Maersk and DP World) are emerging as end-to-end integrators, they should spare no effort to address congestion and service reliability and ensure that maritime trade is not undermined by the current logistical hurdles.

Meanwhile in mid-2021 pressure in container shipping continued unabated, with shippers increasingly worrying about the reliability of services and their ability to secure space for their shipments. On 9 July 2021, the President of the United States signed an executive order that encourages the United States Federal Maritime Commission "to ensure vigorous enforcement against shippers charging American exporters exorbitant charges" (Holt, 2021). Since then, Federal maritime regulators have ordered eight container lines to provide details showing how congestion port surcharges meet legal and regulatory requirements (Szakonyi, 2021).

5. Container port traffic disrupted as congestion heightens and shipping adjusts operations and schedules

For ports, the years 2020 and 2021 were highly disruptive. In 2020, global container port throughput fell by 1.2 per cent, to 815.6 million TEU (table 1.10). For 2021, however, volume is projected to grow by 10.1 per cent as the global economy and trade recover, along with increasing optimism arising from the vaccine rollout (Drewry Maritime Research, 2021e). But some ports fared better than others. Antwerp, for example, fared much better in the COVID-19 crisis than it had during the 2009 downturn.

In 2020, Asia, with nearly two-thirds of the throughput, maintained its position as the global hub for container port traffic (figure 1.10). Europe was the second-largest container port handling region in 2020 (14.4 per cent). Together, North America (7.5 per cent), Latin America and the Caribbean (7.2 per cent), Africa (4.0 per cent), and Oceania (1.6 per cent) accounted for the remaining shares. North America and Asia benefited from the swift trade rebound in the second half of 2020, but recurrent virus outbreaks and pandemic containment measures, among other factors were a drag on container port traffic in Europe and other regions.

China's dominance is also evident from data on the world's top 20 ports around half of which are in China (figure 1.11). In 2020, cargo throughput in these leading ports declined, though there were some exceptions, notably Tanjung Pelepas with growth of 7.7 per cent and Long Beach which benefited from a surge in the United States containerized imports. In the fourth quarter of 2020, volumes at Long Beach rose 23 per cent. Los Angeles also enjoyed 22 per cent growth in the last quarter of the year but still closed the year down 1.3. per cent.

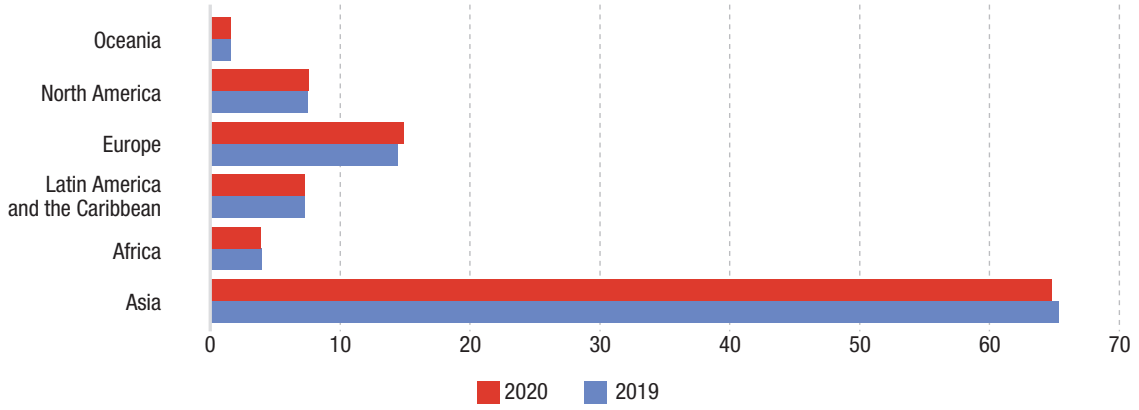
Table 1.10 World container port throughput by region, 2019–2020
(million TEU and annual percentage change)

	2019	2020	2019–2020
Asia	534.8	532.7	-0.4%
Africa	32.5	32.5	0.0%
Latin America and the Caribbean	60.1	59.0	-1.8%
Europe	122.6	117.4	-4.2%
North America	62.4	61.2	-1.9%
Oceania	12.9	12.8	-0.8%
World Total	**825.3**	**815.6**	**-1.2%**

Source: UNCTAD secretariat based on data collected by various sources, including Lloyd's List Intelligence, MDS Transmodal, Dynamar B. V., Drewry Maritime Research, Professor Jean-Paul Rodrigue, Hofstra University, as well as information published on relevant port authorities and container port terminals websites. In some cases, data was estimated based on liner shipping connectivity data at country level.

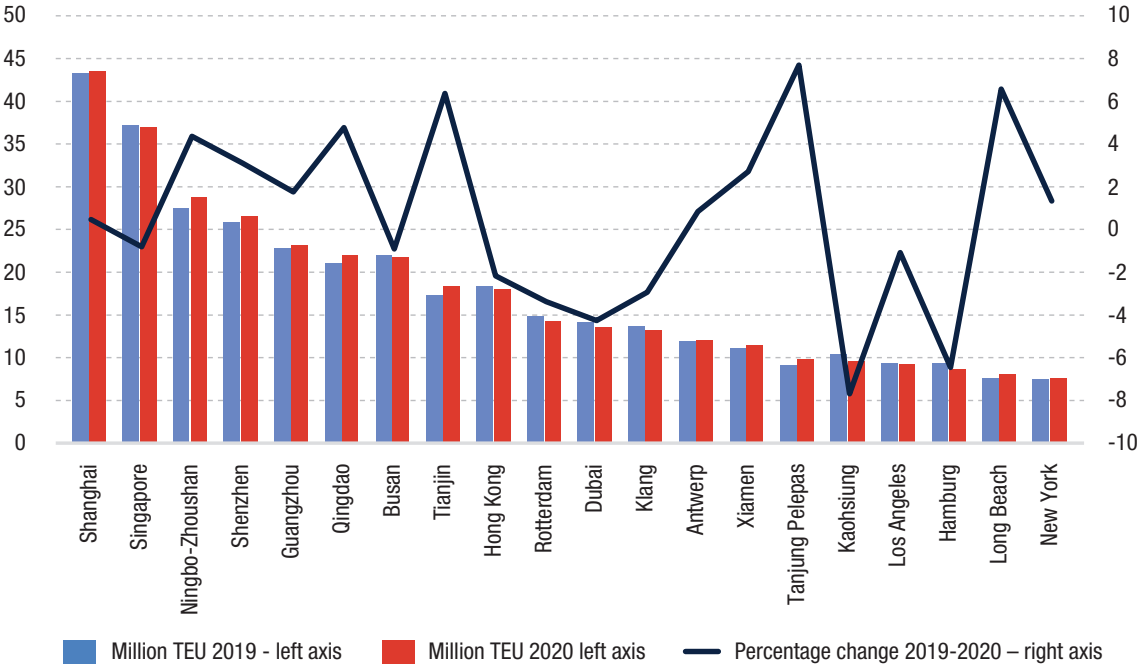
Note: Data reported in the format available. In some cases, country volumes were estimated based on secondary source information and reported growth rates. Country totals may conceal the fact that minor ports may not be included. Therefore, in some cases, data in the table may differ from actual figures.

Figure 1.10 World container port throughput by region, 2019–2020
(percentage share in total TEU)



Source: UNCTAD secretariat calculations, derived from table 1.10.

Figure 1.11 Leading 20 global container ports, 2019–2020
(TEU, percentage annual change)



Source: UNCTAD based on data published on Hamburg Port Authority website (www.hafen-hamburg.de/en/statistics/top-20-container-ports), accessed July 2021.

Nearly all leading Chinese ports increased their throughput. Shanghai saw slow growth but remained the world's leading port, while growth in Tianjin was 6.4 per cent and Qingdao 4.8 per cent. In Europe and North America port performance varied. Outside this group, the fall in throughput in Colombo was caused by pandemic-induced labour shortages and limited capacity on mainline vessels. Beirut continued to lose traffic to Tripoli following the 2020 port explosion (Drewry Maritime Research, 2021f).

New York (+1.3 per cent) and Antwerp (+0.8 per cent) have been more resilient, while Kaohsiung (-7.7 per cent) and Hamburg (-6.5 per cent) were severely hit. Others such the ports of Dubai (-4.3 per cent), Rotterdam (-3.4 per cent), Klang (-2.9 per cent), and Busan (-0.9 per cent), recorded drops in volumes handled.

The COVID-19 pandemic was a big disruptor that has created challenges but also opportunities for the sector. Digitalization and environmental sustainability have become key pillars of the post-pandemic recovery. Industry and governments are considering opportunities that may arise from 'building back better'. For example, in 2021 COSCO Shipping Ports launched a green finance framework to drive green

and smart port development (Greenport, 2021a). Elsewhere, the European Union granted €25 million to a consortium led by the Port of Rotterdam to run pilot projects on sustainable and smart logistics. Project partners will also design and implement digitalization and automation solutions for the energy transition (Greenport, 2021b). Meanwhile, the United States' $1.9-trillion spending plan includes funds earmarked for transport infrastructure and resilience, including ports (Port Strategy, 2021).

B. OUTLOOK AND LONGER-TERM TRENDS

As the global economy moves towards its next normal, there are optimistic signs for maritime trade. Some of the pandemic's impacts and legacies could linger, but the short-term outlook is generally positive.

1. A positive short-term outlook but with risks and uncertainties

Global economic prospects improved by late 2020, supported by vaccine rollout in advanced regions, the possibility of additional spending in some major economies, and the easing of containment measures and restrictions in some parts of the world. While emerging trends are encouraging, uncertainty remains as the sustainability of the nascent, fragile and divergent recovery depends on the pandemic's path and a broader rollout of vaccines worldwide.

UNCTAD projects shipping volumes to increase by 4.3 per cent in 2021, and exceed their 2019 levels (table 1.11). Containerized trade is expected to grow by 7.7 per cent. Over the 2022–2026 period, total maritime trade is expected to grow 2.4 per cent annually – compared with 2.9 per cent over the previous two decades. Maritime trade is projected to moderate along with GDP (IMF, 2021).

The intensified cost pressures, inefficiencies, and vulnerabilities in the maritime supply chain, driven primarily by the COVID-19 disruption and its knock-on effects on shipping and ports, could continue to disrupt supply chains, raising both production costs and consumption prices. But these pressures are expected to ease when global demand patterns are normalized, manufacturing capacity comes online, and logistical assets are optimized to improve the balance between supply and demand.

A further concern is trade protectionism and trade tensions between China and its trading partners, including the United States and Australia. Governments may also resort to trade protectionism to mitigate discontent and social tensions arising from the impact of COVID-19 on employment and social inequalities.

On the upside, the recovery should be driven by fiscal support measures, though there are uncertainty regarding the duration of current stimulus packages and government spending while developing countries continue to be under pressure – having limited fiscal policy space and low access to vaccines.

Other positive trends include the signing in 2020 of the Regional Comprehensive Economic Partnership and the coming into force of the African Continental Free Trade Area (AfCFTA) in 2021. UNCTAD expects the AfCFTA to boost intra-African trade by about 33 per cent and cut Africa's trade deficit by 51 per cent (Saygili, Peters, Knebel, 2018). AfCFTA also has important implications for maritime transport and services trade (box 1).

Table 1.11 International maritime trade developments forecasts, 2021–2026
(annual percentage change)

	Annual Growth	Years	Seaborne trade flows
UNCTAD	4.3	2021	Total seaborne trade volume
	3.2	2022	
	2.4	2023	
	2.3	2024	
	2.3	2025	
	2.2	2026	
UNCTAD	7.7	2021	Containerized trade volume
	5.9	2022	
	4.7	2023	
	4.4	2024	
	4.2	2025	
	4.1	2026	
Clarksons Research, *Seaborne Trade Monitor*, June 2021	4.3	2021	Total seaborne trade volume
	3.1	2022	
	5.9	2021	Containerized trade volume
	4.0	2022	

Source: UNCTAD secretariat based on own calculations and forecasts published by the indicated institutions and data providers.

Note: Projections are based on the estimated elasticities of maritime trade with respect to world GDP, export volumes, investment share in GDP for the 1990-2020 period as well as monthly seaborne trade data published by Clarksons Research.

Box 1 Implications of AfCFTA for maritime transport in Africa

The African Continental Free Trade Area (AfCFTA) agreement entered into force in 2019, and its implementation commenced in 2021. It aims to increase intra-African trade by eliminating import duties, and to double this trade if non-tariff barriers are also reduced. Adequate transport infrastructure and services in Africa, including maritime transport connectivity, are critical to the full realization of the benefits of AfCFTA. Moreover, the AfCFTA is expected to increase demand for different modes of transport, including maritime transport, which in turn will increase investment requirements for infrastructure and equipment – ports and vessels in the case of maritime transport.

The Services Protocol of AfCFTA sets out principles for enhanced continental market access and services- sector liberalization. The five priority sectors identified include transport, business services, communication services, financial services, and tourism. AfCFTA could therefore be a game-changer for investment in transport infrastructure and services. Maritime transport infrastructure in Africa includes several ports across the continent which landlocked countries access through road and rail corridors. Some of these ports are congested and located in the middle of cities.

A study by the Economic Commission for Africa, with a time horizon of 2030, provides a forecast of the requirements for transport infrastructure, services, and equipment as a result of the implementation of AfCFTA. The analysis shows that in 2019, maritime transport accounted for almost a quarter of total intra-African freight transport demand (22 per cent). It indicates that the number of tons transported by vessels with the implementation of AfCFTA would increase from 58 million to 132 million tons. The total maritime transport share is expected to increase only by 0.6 per cent, from 22.1 per cent to 22.7 per cent in the scenario where AfCFTA and priority infrastructure projects are implemented, and by 1.5 per cent in the scenario where AfCFTA is implemented but priority infrastructure projects are not implemented. If priority infrastructure projects are implemented some traffic is expected to shift to rail and road as these projects focus mainly on road and rail transport.

The study shows that countries in different subregions of the continent will experience a surge in traffic through their ports by 2030 owing to AfCFTA, including Gabon (Central Africa), Ghana, Gambia (West Africa), Somalia, Comoros, Mauritius (East Africa) and Mozambique, Madagascar, Namibia (Southern Africa). The study estimates the required size of Africa's maritime transport fleet due to the implementation of AfCFTA. In this regard, in the scenario where AfCFTA is not implemented and no priority infrastructure projects are implemented by 2030 compared to 2019 (the baseline), the size of the fleet is estimated to increase by 43 per cent for bulk and 40 per cent for container cargo. However, compared to 2019 and to satisfy intra-African trade demand, the size of the fleet for bulk and container cargo is estimated to increase by 200 per cent if AfCFTA is implemented and no infrastructure projects are executed. In the scenario where AfCFTA and the different infrastructure projects are implemented by 2030, the fleet is estimated to increase by 188 per cent for bulk and 180 per cent for container cargo.

The most significant vessel demand to support trade flows resulting from AfCFTA, compared to the baseline of 2019, is within North Africa (35 per cent of the total vessel fleet), from North Africa to East Africa (15 per cent), and from North Africa to West Africa (11 per cent). It is worth noting that the second priority action plan of the Programme for Infrastructure Development in Africa (PIDA PAP II), endorsed by the Summit of African Union Heads of State in February 2021, and to be implemented between 2021 and 2030, recognizes the importance of maritime transport to Africa's socio-economic development and regional integration. In this regard, PIDA PAP II includes the following projects:

- Maritime connectivity between the islands of Comoros;
- Construction of petroleum jetty and associated storage facilities at Albion, Mauritius; and
- Praia-Dakar Shipping and Maritime Services Project.

Source: Economic Commission for Africa (forthcoming). *Implications of the African Continental Free Trade Area for Demand of Transport Infrastructure and Services*. Addis Ababa, Ethiopia.

2. Long-term outlook shaped by structural factors and lingering effects of the pandemic

The long-term outlook will be shaped by a range of continuing structural trends. These include changing patterns of globalization, the drive for more-resilient supply chains, changes in consumer spending and the growth of ecommerce, the need for environmental sustainability, the global energy transition, and the continuing uptake of digitalization.

Shift in globalization patterns

Even before the COVID-19 pandemic, global value chains were being increasingly shaped by rising demand and new industry capabilities in the developing regions, and growth in automation and robotics, the shift from tradeable goods to service, and limited growth in vertical specialization and global fragmentation

of production that reflect maturing value chains in China and the United States. The hyper-globalization of the late-1990s and early-2000s appears to be decelerating. Enterprises, particularly in automotive, computer and electronics industries, are aiming to locate production closer to demand and consumption markets. Developing countries are increasingly consuming their own products and reducing their imports of intermediate goods while creating more comprehensive domestic supply chains (UNCTAD, 2019).

Decisions will also be shaped by recent episodes of shipping network disruption (Suez Canal blockage, surge in COVID-19 cases in South China), chip shortages that close car manufacturing, shipping delays and soaring costs. Existing shifts in globalization patterns can be expected to accelerate (Yap and Huan, 2018).

Some countries are also aiming for greater self-reliance particularly in goods considered to be strategically valuable, such as pharmaceuticals and medical equipment, and new technology (Fitch Solutions, 2020). This is illustrated by initiatives such as Made in China 2025, Buy American, Strategic Autonomy in Europe, and Self-sufficient India – as well as incentives to move supply chains closer to home in Japan, the Republic of Korea and Taiwan Province of China.

In the United States, the new administration has already indicated its intention to build supply chains that rely less on China for strategically important products (Wood and Helfgott, 2021). And in China the recent 14th Five-Year Plan is expected to boost domestic consumption and expand the domestic market for China's manufactured goods. It also seeks to achieve technological self-sufficiency and expand exports (Fitch Solutions, 2021). Overall, the plan is expected to benefit shipping while promoting energy, grains, minor bulk commodities, and chemicals imports.

While the pandemic could deepen pre-existing changes to globalization patterns, it has also reaffirmed China's important role in sustaining international trade. With around one-third of global trade, China is showing the resilience and determination to remain the ‘factory of the world’. West and South Asia, South America, Western Europe and the Mediterranean regions recorded export growth in the fourth quarter of 2020, although of a lower scale (Teodoro, 2021).

Since 2018 the United States has increased tariffs, but rather than inducing a return of production to the United States this tended to shift manufacturing within Asia. In 2020 Cambodia, for example, took over a large part of China's market share in United States imports of Christmas lights. During the same period, exports of bikes to the United States from Cambodia jumped by 478 per cent and from Taiwan Province of China by 30 per cent. Tariffs have not provoked a large-scale nearshoring and have had little impact on ton-miles as containerized exports from China or neighbouring East Asian countries hardly affect the distances travelled to the United States (Sand, 2020b).

Nevertheless, while China continues to lead world exports its predominance can be expected to moderate as its economy matures and relies more on domestic than external demand. This implies that imports in value terms are likely to increase faster than exports (Nicita and Razo, 2021), suggesting potential shifts in shipping patterns and trade, and changes in maritime transport demand.

Nevertheless an outright reversal of globalization will be difficult. Global supply chains are the product of years of investment, relationship-building, and knowledge acquisition, and China's large production and logistical capacity and economies of scale are difficult to replace. This was demonstrated by the increased imports of electronics in 2020, which triggered a shift of some production and sourcing back to China. And while imports of machinery and electrical equipment, and computers from Mexico may have increased over recent years, often components are exported from China to Mexico for assembly in manufacturing facilities near the United States border (Cassidy, 2021a).

It may be fairly straightforward to change labour-intensive and low-value supply chains. Apparel and textiles, for example, are already moving away from China to Bangladesh, Viet Nam, and Ethiopia. Turkey is also a major producer of clothing, shipping goods to Europe. But it is more complex for mid- and high-value-added manufacturing. For semiconductors, for example, one study estimated that only 9 to 19 per cent of trade flows could potentially shift. For car exports the estimate was 15 to 20 per cent though for pharmaceuticals it was 38 to 60 per cent (Lund et al., 2020).

Some companies are nevertheless aiming to diversify production sites, with a ‘China +1’ strategy and will continue to look for alternative sources which will require adjusting networks and inventory management strategies and transport and shipping routes. This is resulting in new trade flows as observed in the case of China-Mexico-United States, or from other countries in East Asia to the United States. Morocco, and Central and Eastern Europe can be expected to strengthen their position as new suppliers to the North American and European consumer market, for cars, electronics, and heavy

machinery (Fitch Solutions, 2020). In the long term, automation could make reshoring and nearshoring more economically viable.

The pandemic and its fallout are likely to hasten this transition, but the outcome will likely be a blended approach, balancing localized and global sourcing depending on product and geography (UNCTAD, 2021c). These trends have major implications for maritime transport, as carriers need to redefine distances and routes and offer more flexible shipping services. A reconfiguration of supply chains has implications for vessels, sizes, ports of call, and distance travelled.

Mainstreaming supply chain resilience, risk assessment and preparedness

Over the years, global supply chains have become more sophisticated and extensively interlinked. They have also become vulnerable to wide-ranging risks, with more potential points of failure. This became clear from the COVID-19 disruption which tested existing supply chains and logistics networks and their underlying business models.

Aiming for greater supply chain resilience will mean diversifying business partners and suppliers, improving forecasting of demand and volumes, ensuring better management of inventories and safety stocks, and carefully rethinking the trade-offs between just-in-time and just-in-case supply chain business models (Cassidy, 2021b). While responses may be influenced by sentiment at the height of the pandemic, over 90 per cent of the supply chain executives that had responded to a May 2020 survey, were planning to enhance resilience (Lund et al., 2020). This can be achieved, for example by allowing for redundancy across suppliers, nearshoring, regionalizing their supply chains, dual-sourcing raw materials, backing up production sites, increasing inventory of critical products, strengthening supply-chain risk management, improving end-to-end transparency, and minimizing exposure to cybersecurity and other shocks.

Investors, rating agencies, and regulators increasingly expect ports and shipping companies to integrate risks into their plans (Kim and Ross, 2019). For this they will need to devise and implement risk management and business continuity strategies, and ensure visibility across extended supply networks, while building strong relationships with key partners, including shippers and inland transport providers. To this end, they can use new technologies that enable end-to-end visibility, collaboration, responsiveness, agility, and optimization of operations (Koch, Vickers, and Ritzmann, 2020). It will also be important to support the digitalization of smaller ports and inland terminals (Schwerdtfeger, 2021a).

Any effort to strengthen the resilience of the maritime supply chain would be in vain if the human resources and labour dimension is not addressed as a matter of priority. The pandemic has underscored the critical role of seafarers. Smooth delivery of trade by shipping and efficient handling of cargo by ports depend mainly on their labour forces. Crew members need to rotate at the end of their contract periods. At the height of the disruption, hundreds of thousands of seafarers could not be repatriated, while an equivalent number were stuck at home and could not join their ships and provide for their families. As indicated in Chapter 5, the shipping industry has asked that vaccines be secured and allocated specifically for seafarers. In May 2021, the International Maritime Organization called on Member States to support the fair global distribution of COVID-19 vaccines.

In support of these efforts, Singapore, as a global hub port and international maritime centre, is considering providing vaccines to crews on vessels calling at its port (Ang, 2021). Elsewhere, in June 2021 the Royal Association of Netherlands Shipowners launched the Vaccination Programme for Seafarers.

The growth in ecommerce and change in consumption patterns

Pandemic-induced shifts in consumption and shopping habits together with digitalization have accelerated growth in ecommerce. In 2019, around 16 per cent of retail sales were online, a proportion which grew in 2020 to 19 per cent (UNCTAD, 2021b). UNCTAD estimates the global ecommerce market in 2019 at $27 trillion, equivalent to 30 per cent of GDP. Ecommerce fulfilment provides new business opportunities – in particular for warehousing and distribution facilities at seaports, inland rail hubs, and near airports. This can reduce supply chain uncertainties enabling retailers to keep more inventory at hand. Retailers are also seeking properties with large container yards to store containers on chassis (Mongelluzzo, 2021b).

Ports close to, or well-connected to, large population centres could tap this business potential (Drewry Maritime Research, 2021d). Already, some container shipping companies and ports are positioning themselves to emerge as door-to-door service integrators (e.g., Maersk and DP World). Container shipping

companies have recently invested in other parts of the supply chain, including warehousing, aircraft, and distribution (Steer and Dempsey, 2021).

The imperative for environmental sustainability and the energy transition

The COVID-19 pandemic has increased the focus on environmental sustainability. Maritime transport is facing growing pressure to decarbonize and enable an effective energy transition – both as a transporter and user of energy. Fossil fuels make up over one-third of global maritime trade but demand for these fuels is expected to fall, with clear implications for tankers and coal carriers, while demand is likely to increase for ships transporting hydrogen or ammonia.

At the same time ships are also expected to shift their own fuel mix and use new ship designs to cut fossil fuel consumption and reduce carbon emissions. To mitigate these additional costs, shipping is set to rely on technological and operational adjustments.

Ports are also expected to play their part and become smart and green. Some governments have earmarked some of the pandemic-induced stimulus packages for smart and green maritime transport projects.

Acceleration in digitalization

Port authorities, shippers, and freight forwarders that had invested in digital infrastructure and connectivity and promoted data exchange navigated more smoothly through the COVID-19 disruption (Schewerdtfeger, 2021a). But this also widened the digital divide between developed and developing regions. Countries that were less advanced were less able to mitigate the pandemic and diversify their economies.

UNCTAD expects the fast shift towards digitalization to strengthen the market positions of a few digital mega platforms. If left unaddressed, the yawning gap between under-connected and hyper-digitalized countries will widen, exacerbating inequalities (UNCTAD, 2020b).

Investing in digital infrastructure is crucial for information sharing and effective resource planning. Automation and smart technologies, including artificial intelligence, can solve many of the challenges faced by the industry, such as how to process more cargo in an environmentally friendly manner (Schewerdtfeger, 2021c). Developing countries should be supported in their efforts to implement digital tools to advance environmental sustainability, economic efficiency, and resilience.

C. POLICY CONSIDERATIONS AND ACTION AREAS

Against the backdrop of an already more challenging global geopolitical and trade policy landscape, the COVID-19 disruption shone light on the vulnerabilities of the global supply chains, including their underlying maritime transportation networks. Governments are forging ahead with 'build back better' policies and initiatives to ensure that risks, environmental sustainability, and technology are integrated as pre-requisites for a sustainable and resilient post-pandemic world. While maritime trade is currently in recovery mode, the pandemic is having a lasting impact. The recovery is uneven and fragile and some pre-existing trends are being amplified or accelerated.

Maritime transport and trade are at the forefront of these trends, and the following priority actions areas will help the sector navigate through the transition:

- *Vaccination* – Strengthen international efforts to tackle the pandemic and ensure wider vaccination across regions and within the shipping industry, with vaccination plans for seafarers topping the priority list. A two-paced vaccine approach widening the gap between countries, populations and economic sectors will perpetuate asynchronous recovery patterns, which may have proved helpful in preventing a protracted downturn when the pandemic hit but raises concerns about the sustainability of the recovery. A multi-paced vaccine-led recovery entails risks, and would exacerbate inequalities which could culminate in social tensions and disruptions. The International Monetary Fund estimates that $50 billion is required to end the pandemic across the world and ensure that vaccines are accessible to developing countries. The dividend for the world economy extends beyond saving lives, as investing in global vaccination plans could accelerate economic recovery and generate some $9 trillion in additional global output by 2025 (Georgieva et al., 2021).
- *Digital divide* – Help countries and their maritime industries to catch up and close the digital gap. The pandemic may have exacerbated the digital divide between developed and developing regions

and between the hyperconnected and weakly connected. Closing the gap is important and could form part of relevant post-pandemic recovery plans and other support measures.

- *Facilitate trade* – The wheels of trade and shipping kept the world going when the pandemic hit and helped lift the world economy. Going forward, trade should be further enabled by adopting supportive policy measures that minimize trade restrictiveness and protectionist tendencies.
- *Fiscal support* – Carefully time the winding up and withdrawal of fiscal support measures, to avoid a premature withdrawal that stifles the nascent recovery. For most developing countries where fiscal measures similar to those in developed regions could not be deployed, international cooperation and targeted aids are becoming crucial.
- *Stakeholder collaboration* – Stakeholders in the maritime supply chain, including carriers, ports, inland transport providers and shippers, should work together to ensure that maritime transport remains a reliable, predictable, and efficient mode of transport that links supply chains and enables trade. And to ensure visibility and transparency they should ensure enhanced communications, and sharing of data and information.
- *Ecommerce* – Shipping and ports should explore the business opportunities arising from growth in ecommerce, accelerated digitalization and the growing environmental sustainability imperative, and take these opportunities to promote profitability while also providing quality services that meet customer and supply chain requirements.
- *Sustainability* – Expand efforts to promote environmental sustainability as part of the various stimulus packages and post-pandemic recovery plans. Support for decarbonization under the IMO framework should not waver, while ensuring that the implications for developing countries are well understood.
- *Energy transition* – Promote investment in fleets, technologies, and infrastructure, including ports and hinterland connections, to support a maritime supply chain energy transition and environmental sustainability.
- *Resilience building and future proofing* – Prioritize preparedness, risk management, digitalization, environmental sustainability, and improving data and forecasting. End-to-end visibility will increase resilience while enhancing efficiency and productivity gains. A portfolio of measures can improve resilience including redundancy across suppliers, dual-sourcing, backing up production sites, and managing inventory, and stocks, along with risk management, and end-to-end transparency. Hybrid solutions can also be envisaged, involving extended supply chains with an element of nearshoring and reshoring.

REFERENCES

Ang I (2021). Singapore looks to vaccinate foreign seafarers during crew changes. 8 July. Tradewinds.

Baker J (2021a). Shippers renew call for block exemption to be removed. Lloyd's Loading List. 14 June. www.lloydsloadinglist.com.

Baker J (2021b). Shippers seek collaboration, not regulation, to fix supply chain. Lloyd's Loading List. 23 July. www.lloydsloadinglist.com.

Clarksons Research (2020). LNG Trade and Transport 2020. London.

Clarksons Research (2021a). Shipping Review Outlook. Spring.

Clarksons Research (2021b). *Seaborne Trade Monitor*. Volume 8, No.6. June.

Clarksons Research (2021c). Suez Canal Blockage: Summary and Context. Briefings. 29 March.

Connolly M (2021). West coast Latin America looks to Asia for refined products. Argus Media. 28 June.

Danish Shipping Finance (2021). Shipping Market Review. May.

Danish Shipping Finance (2020). Shipping Market Review. November.

Drewry Maritime Research (2021a). Shipping Insight. April.

Drewry Maritime Research (2021b). Shipping Insights. February.

Drewry Maritime Research (2021c). Shipping Insights. May.

Drewry Maritime Research (2021d). Ports and Terminals Quarterly Insights. Quarter 2. May.

Drewry Maritime Research (2021e). Container Forecaster. Second Quarter. June.

Drewry Maritime Research (2021f). Port Quarterly Insight. Quarter 1. March.

Ebregt J (2020). The CPB World Trade Monitor: Technical description (update 2020). CPB Background

Document. CPB Netherlands Bureau for Economic Policy Analysis. The Netherlands

Economic Commission for Africa (forthcoming). *Implications of the African Continental Free Trade Area for Demand of Transport Infrastructure and Services*. Addis Ababa, Ethiopia.

Economist Intelligence Unit (2021). Trade in Transition. Global Report. DP World.

Fitch Solutions (2020). Deglobalization Will Prompt Lasting Changes to Supply Chains.9 October.

Fitch Solutions (2021). China's 14th Five-Year Plan: Evolution of Policy to Meet Challenges. March 2021.

Gallagher J (2021). Congress drafting law barring ocean carriers from refusing US exports. Freight Waves. 15 June. https://www.freightwaves.com.

Georgieva K, Ghebreyesus TA Malpass D and Okonjo-Iweala N (2021). A New Commitment for Vaccine Equity and Defeating the Pandemic. 1 June 2021. www.imf.org.

Greenport (2021a). Green finance initiative launches. 13 May 2021.

Greenport (2021b). Greenport project funding. 12 May 2021.

Global Times (2021). China-Europe freight trains jump 96 per cent in Jan-Feb, a steady pillar for BRI trade in hard times. 8 March.

Hellenic Shipping News (2020). Guinea set to supply iron ore from 2026. 1 June.

Holt G (2021). Biden executive order could bring more scrutiny to rising container shipping costs. SP Global. 9 July. www.spglobal.com.

IMF (2021). World Economic Outlook: Managing Divergent Recoveries. April. Washington. www.imf.org.

Jack E and Don C (2021). Lack of Tiny Parts Disrupts Auto Factories Worldwide. 13 January. *New York Times*.

Knowler G (2021). Maersk signals next logistics acquisition will be billion-dollar deal. 11 May. www.JOC.com.

Koch M, Vickers P and Ritzmann S (2020). Building Supply Chain Resilience beyond COVID-19. Deloitte.

Lund S et al. (2020). Risk, resilience, and rebalancing in global value chains. McKinsey Global Institute. August. www.mckinsey.com.

MDS Transmodal (2021). World Cargo Database. 16 June. www.mdst.co.uk.

Metroshipping (2021). Container vessel schedule reliability at all-time lows on a global level. 8 July. www.metroshipping.co.uk.

Mongelluzzo B (2021a). US port delays force 'structural' blank sailings on Asian services. 26 January. Journal of Commerce. www.JOC.com.

Mongelluzzo B (2021b). Record US warehousing demand to continue through 2021. 10 March. Journal of Commerce. www.JOC.com.

Nicita A and Razo C (2021). China: The rise of a trade titan. 27 April.

Notteboom T (2021). PortEconomics.eu. 2 March.

Notteboom T, Pallis A and J-P Rodrigue (2021) "Disruptions and Resilience in Global Container Shipping and Ports: The COVID-19 Pandemic vs the 2008-2009 Financial Crisis", Maritime Economics and Logistics, vol. 23, issue 2, No 1, 179-210, available at https://link.springer.com/article/10.1057%2Fs41278-020-00180-5.

PortStrategy (2021). Thinking Big. 24 May. www.portstrategy.com.

Port Technology International (2021a). Blank sailings at Yantian rise by 300 per centas expert warns of "massive headaches" for global economy. 20 June. www.porttechnology.org.

Port Technology International (2021b). Maersk responds to ocean congestion with new intermodal route. 21 June. www.porttechnology.org.

Sand P (2020a). Phase One' agreement boosts exports and doubles volumes from last year. 15 December. BIMCO.

Sand P (2020b). US-China trade war reinforces change in Asia's manufacturing landscape. BIMCO. 23 September.

Sand P (2021a). Macroeconomics: shipping enjoys a higher trade multiplier as 2021 promises a slow recovery. BIMCO. 24 February.

Sand P (2021b). Imbalance on transpacific trade increases even as surge in US imports eases. BIMCO. 24 March.

Sand P (2021c). Container shipping: continued disruption will ensure carrier profitability well into 2021. BIMCO. 25 February.

Saygili M, Peters R, Knebel C (2018). African Continental Free Trade Area: Challenges and Opportunities of Tariff Reductions. UNCTAD Research Paper No. 15. UNCTAD/SER.RP/2017/15/Rev.1. February.

Steer G and Dempsey H (2021). Shipping groups prepare for more 'black swan' events after Suez blockage. 7 April. www.ft.com.

Schwerdtfeger M (2021a). CTAC 2021: Digitalise inland terminals to boost supply chain resiliency. 19 May.

Schewerdtfeger M(2021b). Smart technologies remain critical to solving ports' major challenges. 13 May.

Schewerdtfeger M (2021c) US must invest in digital infrastructure to avoid future supply chain cries. 17 May. Journal of Commerce. www.JOC.com.

Szakonyi M (2021). FMC orders carriers to justify US port congestion surcharges. 4 August. Journal of Commerce. www.JOC.com.

Teodoro A (2021). Changing lanes: China retains 'factory of the world' crown amid pandemic. 3 March. Available at https://lloydslist.maritimeintelligence.informa.com.

Tirschwell P (2021). Maersk upping ante on integrator strategy. 14 May. www.JOC.com.

UNCTAD (2019). *Review of Maritime Transport 2018*. Geneva and New York. Available at https://unctad.org/system/files/official-document/rmt2018_en.pdf.

UNCTAD (2020a). *Review of Maritime Transport 2020*. Geneva and New York. Available at https://unctad.org/webflyer/review-maritime-transport-2020.

UNCTAD (2020b). The COVID-19 Crisis: Accentuating the Need to Bridge Digital Divides. Digital Economy Update. UNCTAD/DTL/INF/2020/1. April. Available at https://unctad.org/system/files/official-document/dtlinf2020d1_en.pdf.

UNCTAD (2021a). Global Trade Update. World trade rebounds to record high in Q1 2021. May. Available at https://unctad.org/system/files/official-document/ditcinf2021d2_en.pdf.

UNCTAD (2021b). Estimates of Global E-Commerce 2019 and Preliminary Assessment of COVID-19 Impact on Online Retail 2020. Geneva. 3 May. Available at https://unctad.org/system/files/official-document/tn_unctad_ict4d18_en.pdf.

UNCTAD (2021c). Impact of the COVID-19 Pandemic on Trade and Development: Transitioning to a New Normal. UNCTAD/OSG/2020/1. Geneva. Available at https://unctad.org/system/files/official-document/osg2020d1_en.pdf.

UNDESA (2021). World Economic Situation and Prospects as of Mid-2021. United Nations. New York. Available at https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/publication/WESP2021_UPDATE.pdf.

Vanham P (2019). A brief history of globalization. World Economic Forum. 17 January. www.weforum.org.

Waters W (2021a). Demurrage and detention charges double in a year. Lloyd's Loading List. 29 June.

Waters W (2021b). South China port disruptions 'could extend to Christmas. Lloyd's Loading List. 7 July.

Waters W (2021c). Sharp increase in 'double-sailings' adds to pressure on ports. Lloyd's Loading List. 22 June.

Waters W (2021d). Blank sailings point to ocean space shortages well into the summer. Lloyd's Loading List. 24 May.

William C (2021a). Top US Shippers: Electronics importers return to China during COVID-19. 3 June. Journal of Commerce.

William C (2021b). Outlook 2021: Shippers face new twists, risky turns in pandemic-altered market. 4 January. Journal of Commerce.

World Trade Organization (2021). World trade primed for strong but uneven recovery after COVID-19 pandemic shock. Press/876. 31 March.

World Trade Organization (2020). Trade set to plunge as COVID-19 pandemic upends global economy. PRESS 855. 8 April.

Wood D and Helfgott A (2021). Inclusive and transparent dialogue can fix fragile US supply chains. 23 May. The World Trade Organization (2021). World trade primed for strong but uneven recovery after COVID-19 pandemic shock. Press/876. 31 March.

Yap J and Huan A (2018). The Good, the Bad, and the Ugly of Globalization. SIDS Directors Bulletin. Quarter 3. www.deloitte.com.

Yoon K and Lindsay R (2019). Ports: An industry guide to enhancing resilience. Resilience Primer. Four Twenty-Seven Inc. and Resilience Shift, United Kingdom.

Zhang H (2021). Chinese Grain Imports: Taking Centre Stage Once Again. Clarksons Research. 30 April.